

SECȚIUNEA 1: IDENTIFICAREA SUBSTANȚEI/AMESTECULUI ȘI A SOCIETĂȚII/ÎNTRERINDERII

1.1 Element de identificare a produsului

Denumirea produsului	Melamină
Denumirea chimică	1,3,5-triazină-2,4,6-triamină
Formula chimică	$C_3H_6N_6$
Nr. CAS	108-78-1
Nr. CE	203-615-4
Nr. înregistrare REACH	01-2119485947-16-0017

1.2 Utilizări relevante identificate ale substanței sau ale amestecului și utilizări contraindicate

Utilizări identificate	Melamina ($C_3H_6N_6$) este un produs sub formă de pulbere albă utilizat pentru producția unei game largi de rășini sintetice. <ul style="list-style-type: none"> • Formulare sau reambalare • Utilizare ca intermediar pentru rășini (melamină reacționată) • Utilizare ca aditiv în spume • Utilizare ca aditiv în acoperiri intumescente • Spume PU – Lucrători (industrială) • Acoperiri intumescente – Lucrători (industrială) • Acoperiri intumescente – Lucrători profesioniști
Utilizări contraindicate	Adăugare la produse alimentare sau furaje.

1.3 Detalii privind furnizorul fișei cu date de securitate

Identificarea societății	Qatar Melamine Co
Adresa	P.O. Box 50001, Mesaieed, Qatar.
Telefon	(+974) 44228888
E-mail	mktg@qafco.com.qa
Reprezentantul unic al unui producător din afara Comunității	MUNTAJAT B.V.
Identificarea societății	Prinses Margrietplantsoen 78-A
Adresa	2595 BR, Haga Țările de Jos
Telefon	+31(0)70 219 7000
E-mail	REACH@muntajatbv.com
Site web	www.muntajatbv.com

1.4 Număr de telefon care poate fi apelat în caz de urgență

Serviciul Național de Informare	+44 (0) 111
Toxicologică (centrul din Birmingham)	
Pentru scurgeri, incendiu, expunere sau	În SUA și Canada: 1-800-424-9300
accident, apălați CHEMTREC atât pe	În afara SUA și Canada: +1 703-741-5970 și +1-703-527-3887 (sunt acceptate
țimp de zi, cât și pe țimp de noapte	convorbirile cu taxă inversă)

SECȚIUNEA 2: IDENTIFICAREA PERICOLELOR

2.1 Clasificarea substanței sau a amestecului

Clasificare conform Regulamentului (CE) nr. 1272/2008 (CLP)	Repr. 2: Susceptibilă de a dăuna fertilității.
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2.2 Elemente pentru etichetă

Denumirea produsului	Conform Regulamentului (CE) nr. 1272/2008 (CLP) Melamină.
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Pictograma de pericol



GHS08

Cuvânt de avertizare

Atenție

Data tipăririi: 6.10.2020

Versiunea nr.: 8

Revizia: 6.10.2020

Frază de pericol

H361f: Susceptibilă de a dăuna fertilității.

Fraze de precauție

P201: Procurați instrucțiuni speciale înainte de utilizare.
P202: A nu se manipula decât după ce au fost citite și înțelese toate măsurile de securitate.
P280: Purtați mănuși de protecție/îmbrăcăminte de protecție/echipament de protecție a ochilor/echipament de protecție a feței.
P308+P313: ÎN CAZ DE expunere sau de posibilă expunere:consultați medicul.
P405: A se depozita sub cheie.
P501: Aruncați conținutul în conformitate cu legislația locală, statală sau națională.

2.3 Alte pericole

Poate fi nociv în caz de înghițire.
Pulberea poate avea efecte iritante asupra pielii, ochilor și a căilor respiratorii.

2.4 Informații suplimentare

Nu există.

SECȚIUNEA 3:COMPOZIȚIE/INFORMAȚII PRIVIND COMPONENTII

3.1 Substanțe

COMPONENTI PERICULOS	Nr. CAS	Nr. CE	%	Frază de pericol	Pictograma de pericol
Melamină	108-78-1	203-615-4 01-2119485947-16-0017	≥ 99	Repr. 2 H361f	GHS08

3.2 Amestecuri

Nu este cazul.

SECȚIUNEA 4:MĂSURI DE PRIM AJUTOR

4.1 Descrierea măsurilor de prim ajutor

Inhalare Dacă respirația este dificilă, transportați victima la aer liber și mențineți-o în stare de repaus într-o poziție confortabilă pentru respirație.Dacă simptomele persistă, consultați medicul.

Contact cu pielea După contactul cu pielea, spălați imediat cu multă apă și săpun.

Contact cu ochii Spălați mai întâi cu multă apă timp de câteva minute (scoateți lentilele de contact dacă acest lucru se poate face cu ușurință), apoi consultați medicul.

Ingerare În caz de înghițire, se clătește gura cu apă (numai dacă persoana este conștientă).

4.2 Cele mai importante simptome și efecte, atât acute, cât și întârziate

Pulberea poate avea efecte iritante asupra pielii, ochilor și a căilor respiratorii.

4.3 Indicații privind orice fel de asistență medicală imediată și tratamentele speciale necesare

În caz de expunere sau de posibilă expunere: Consultați medicul.

SECȚIUNEA 5:MĂSURI DE COMBATERE A INCENDIILOR

5.1 Mijloace de stingere a incendiilor

Mijloace de stingere corespunzătoare Stingeti cu dioxid de carbon, pulbere chimică uscată, spumă sau apă pulverizată.

Mijloace de stingere necorespunzătoare Jet de apă cu debit mare.

5.2 Pericole speciale cauzate de substanța sau de amestecul în cauză

În caz de incendiu se descompune producând vapori toxici:monoxid de carbon, dioxid de carbon, oxizi de azot. Când melamina este încălzită la peste 500 °C eliberează amoniac.

5.3 Recomandări destinate pompierilor

Pompierii trebuie să poarte îmbrăcăminte de protecție completă, inclusiv aparat de respirat autonom.

SECȚIUNEA 6:MĂSURI DE LUAT ÎN CAZ DE DISPERSIE ACCIDENTALĂ

6.1 Precauții personale, echipament de protecție și proceduri de urgență

Asigurați ventilația corespunzătoare.Asigurați echipamentul de protecție personală adecvat (inclusiv echipament de protecție respiratorie) în timpul îndepărtării scurgerilor.Evitați generarea de praf.Evitați să inspirați praful.

Data tipăririi: 6.10.2020

Versiunea nr.: 8

Revizia: 6.10.2020

6.2 Precauții pentru mediul înconjurător

Nu permiteți pătrunderea în canale colectoare, canalizare sau cursuri de apă.

6.3 Metode și material pentru izolarea incendiilor și pentru curățenie

Măturați substanțele vărsate și depozitați-le în recipiente. Dacă este cazul, umeziți-le înainte pentru a preveni formarea prafului. Colectați cu grijă resturile. Nu spălați scurgerile cu apă întrucât zona va deveni alunecoasă și va bloca canalizarea.

6.4 Trimitere la alte secțiuni

A se vedea și secțiunile 8, 13.

SECȚIUNEA 7: MANIPULAREA ȘI DEPOZITAREA

7.1 Precauții pentru manipularea în condiții de securitate

Procurați instrucțiuni speciale înainte de utilizare. A nu se manipula decât după ce au fost citite și înțelese toate măsurile de securitate. Asigurați ventilația corespunzătoare. Evitați generarea de praf. Evitați să inspirați praful. Purtați mănuși de protecție/îmbrăcăminte de protecție/echipament de protecție a ochilor/echipament de protecție a feței. Spălați-vă bine mâinile și pielea expusă după utilizare.

7.2 Condiții de depozitare în condiții de securitate, inclusiv eventuale incompatibilități

A se proteja de lumina solară. A se depozita sub cheie. A se depozita într-un loc uscat. Păstrați recipientul închis etanș.

Temperatură de depozitare

Ambiantă.

Termen de valabilitate

Stabilă în condiții normale.

Materiale incompatibile

Puternic acide. Agenți oxidanți puternici.

7.3 Utilizare (utilizări) finală (finale) specifică (specifice)

- Formulare sau reambalare
- Utilizare ca intermediar pentru rășini (melamină reacționată)
- Utilizare ca aditiv în spume
- Utilizare ca aditiv în acoperiri intumescente
- Spume PU – Lucrători (industrială)
- Acoperiri intumescente – Lucrători (industrială)
- Acoperiri intumescente – Lucrători profesioniști

SECȚIUNEA 8: CONTROALE ALE EXPUNERII/PROTECȚIA PERSONALĂ

8.1 Parametri de control

8.1.1 Valori-limită de expunere profesională

SUBSTANȚĂ	Nr. CAS	LETL (8 ore MPT ppm)	LETL (8 ore MPT mg/m³)	LETS (ppm)	LETS (mg/m³)	Notă
Melamină	108-78-1					Nu sunt alocate

Sursa: UK Workplace Exposure Limits (Limite de expunere la locul de muncă în Regatul Unit) EH40/2005 (ediția a patra, publicată în 2020), Regatul Unit

8.1.2 Valori-limită biologice

Nu sunt stabilite.

8.1.3 PNEC și DNEL

DNEL / DMEL	Orală	Inhalare	Cutanată
Industrie – termen lung – efecte locale			
Industrie – termen lung – efecte sistemice		8,3 mg/m³	11,8 mg/kg greutate corporală/zi
Industrie – termen scurt – efecte locale			
Industrie – termen scurt – efecte sistemice		82,3 mg/m³	117 mg/kg greutate corporală/zi
Consumator – termen lung – efecte locale			
Consumator – termen lung – efecte sistemice	0,42 mg/kg greutate corporală/zi	1,5 mg/m³	4,2 mg/kg greutate corporală/zi

Data tipăririi: 6.10.2020

Versiunea nr.: 8

Revizia: 6.10.2020

Consumator – termen scurt – efecte locale			
Consumator – termen scurt – efecte sistemice			

Mediu	PNEC
Compartimentul acvatic (inclusiv sedimentar)	Apă dulce: 0,51 mg/l Degajare intermitentă: 2 mg/l Apă de mare: 0,051 mg/l Apă dulce (sediment): 2,524 mg/kg greutate uscată Apă de mare (sediment): 0,252 mg/kg greutate uscată
Compartimentul terestru	Stație de epurare a apelor uzate: 200 mg/l
Compartimentul atmosferic	Sol: 0,206 mg/kg greutate uscată

8.2 Controale ale expunerii

8.2.1. Controale tehnice

corespunzătoare

Asigurați ventilația corespunzătoare.

8.2.2. Echipament de protecție personală



Protecția ochilor

Purtați echipament de protecție pentru ochi (ochelari de protecție sau ecran de protecție facială).



Protecția pielii

Purtați mănuși de protecție.
Timpul de penetrare a materialului mănușilor: consultați informațiile furnizate de producătorul mănușilor.



Protecție respiratorie

Trebuie purtată o mască de protecție împotriva prafului aprobată dacă se generează praf în timpul utilizării.



Pericole termice

Nu este cazul.

8.2.3. 8.2 Controlul expunerii mediului Nu permiteți pătrunderea în canale colectoare, canalizare sau cursuri de apă.

SECȚIUNEA 9: PROPRIETĂȚI FIZICE ȘI CHIMICE

9.1 Informații privind proprietățile fizice și chimice de bază

Aspect	Pulbere. Culoare: Albă.
Miros	Inodoră.
Pragul de acceptare a mirosului	Nu este stabilit.
pH	7,5-8,5 (soluție apoasă), 20 g/l la 20°C
Punctul de topire/punctul de înghețare	354°C (Nu îngheață, se solidifică)
Punctul inițial de fierbere și intervalul de fierbere	>354°C (Sublimare)
Punctul de inflamabilitate	Nu este cazul.
Viteza de evaporare	Nu este cazul.
Inflamabilitate (solid, gaz)	Neinflamabil.
Limitele superioare/inferioare de inflamabilitate sau de explozie	Nu este cazul.
Presiunea de vapori	4,7 x 10 ⁻⁸ Pa la 20°C
Densitatea vaporilor	Nu este cazul.
Densitate (g/ml)	1570 kg/m ³
Densitatea relativă	1,57
Solubilitatea (solubilitățile)	Solubilitatea (apă): Solubilitate redusă: 3,48 g/l la 20°C Solubilitatea (alți solvenți): Solubilitate foarte redusă: Acetonă (0,3 g/l), etanol (0,6 g/l), dimetilformamidă (0,1 g/l), Solubilă: Celosolv (11,2 g/l) la 30°C
Coeficientul de partiție: n-octanol/apă	-1,22 la 20°C
Temperatura de autoaprindere	>500°C
Temperatura de descompunere (°C)	>354°C
Vâscozitatea	Nu este cazul.
Proprietăți explozive	Nu este explozivă.

Data tipăririi: 6.10.2020

Versiunea nr.: 8

Revizia: 6.10.2020

Proprietăți oxidante

Nu este oxidantă.

9.2 Alte informații

Constanta de disociere

6,7 pKa la 20°C

Greutatea moleculară

126,12 g/mol

SECȚIUNEA 10: STABILITATE ȘI REACTIVITATE

10.1 Reactivitate

Stabilă în condiții normale.

10.2 Stabilitate chimică

Stabilă în condiții normale.

10.3 Posibilitatea de reacții periculoase

Nu se cunosc reacții periculoase dacă se utilizează în scopul pentru care a fost produsă.

10.4 Condiții de evitat

A se proteja de umiditate.

10.5 Materiale incompatibile

Puternic acide. Agenți oxidanți puternici.

10.6 Produși de descompunere periculoși

Nu se cunosc produși de descompunere periculoși.

SECȚIUNEA 11: INFORMAȚII TOXICOLOGICE

11.1 Informații privind efectele toxicologice

Toxicitatea acută – ingerare

Poate fi nociv în caz de înghițire.

Toxicitatea acută – contact cu pielea

LD50(șobolan): 3161 mg/kg

Toxicitatea acută – inhalare

Toxicitate acută scăzută.

Corodarea/iritarea pielii

Toxicitate acută scăzută.

Lezarea gravă/iritarea ochilor

LC50(șobolan): >5190 mg/m³

Date privind sensibilizare pielii

Nu este clasificată.

Date privind sensibilizare căilor respiratorii

Nu este sensibilizant pentru piele.

Mutagenitatea celulelor germinative

Nu este clasificată.

Cancerigenitatea

Nu există dovezi privind potențialul mutagen.

Toxicitatea pentru reproducere

Nu poate fi clasificată din punctul de vedere al cancerigenității sale pentru om.

LOAEL (oral): 126 mg/kg greutate corporală/zi (cronică, șobolan, vezică urinară).

Au fost observate creșteri semnificative din punct de vedere statistic ale incidenței

carcinoamelor celulare tranzitorii și ale incidențelor combinate ale carcinoamelor și

papiloamelor celulare tranzitorii la nivelul vezicii urinare la masculii de șobolan

expuși la 4500 ppm melamină (cca. 263 mg/greutate corporală/zi), dar nu și atunci

când au fost expuși la 2250 ppm melamină. Cu o singură excepție, au fost observați

calculi la nivelul vezicii urinare la masculii de șobolan care au avut carcinoame

celulare tranzitorii. Femele de șobolan nu au dezvoltat tumori nici chiar atunci când

au fost expuse la 9000 ppm. Nu au fost observate semne ale prezenței neoplasmelor

asociate tratamentului la masculii sau femelele de șoarece. Nu există dovezi la om.

Susceptibilă de a dăuna fertilității la masculii de șobolan.

NOAEL (oral): 89 mg/kg greutate corporală/zi (subacută, 168 ore/săptămână

șobolan).

Au fost detectate efecte adverse asupra sistemului de reproducere masculin în

cadruul unui EOGRS realizat în conformitate cu orientarea 443 a OCDE pe

șobolani, ca urmare a deciziei ECHA numărul TPE-D-21 14373433-50-01. A fost

observată degenerarea/atrofia tubulară testiculară împreună cu fragmente celulare

minime asociate în epididim la masculii F0 și F1. În plus, a fost observată o

creștere a anomalilor spermatozoizilor (capete detașate) la masculii F0 și F1.

Nu este previzibil.

Alăptare

Nu este clasificată.

STOT – expunere unică

Nu este clasificată.

STOT – expunere repetată

Nu este previzibil.

Pericolul prin aspirare

Data tipăririi: 6.10.2020

Versiunea nr.: 8

Revizia: 6.10.2020

11.2 Alte informații

Pulberea poate avea efecte iritante asupra pielii, ochilor și a căilor respiratorii.

SECȚIUNEA 12: INFORMAȚII ECOLOGICE

12.1 Toxicitate

Acută
Cronică

Toxicitate scăzută pentru organismele acvatice.
LC50(Daphnia magna): 200 mg/l
NOEC[boiștean (Pimephales promelas)]: 5,1 mg/l
NOEC(Daphnia magna): 11 mg/l
EC50apă dulce: 325 mg/l
NOECapă dulce: 98 mg/l

12.2 Persistență și degradabilitate

Această substanță nu este ușor biodegradabilă. Nu se așteaptă să fie intrinsec biodegradabilă.

12.3 Potențial de bioacumulare

Substanța nu prezintă potențial de bioacumulare.
Factor de bioconcentrare (FCB): 3,8 l/kg fracție masică

12.4 Mobilitate în sol

Se preconizează ca substanța să aibă o mobilitate moderată în sol.

12.5 Rezultatele evaluării PBT și vPvB

Nu este clasificată ca PBT sau vPvB.

12.6 Alte efecte adverse

Nu se cunosc.

SECȚIUNEA 13: CONSIDERAȚII PRIVIND ELIMINAREA

13.1 Metode de tratare a deșeurilor

Eliminați recipientele goale și deșeurile în condiții de siguranță. Recuperați sau reciclați dacă este posibil.

13.2 Informații suplimentare

Eliminarea trebuie realizată în conformitate cu legislația locală, statală sau națională.

SECȚIUNEA 14: INFORMAȚII REFERITOARE LA TRANSPORT

Nu este clasificată ca fiind periculoasă pentru transport.

14.1 Numărul ONU

Nu este cazul

14.2 Denumirea corectă ONU pentru expediție

Nu este cazul

14.3 Clasa (clasele) de pericol pentru transport

Nu este cazul

14.4 Grupul de ambalare

Nu este cazul

14.5 Pericole pentru mediul înconjurător

Nu este clasificată ca fiind poluant marin.

14.6 Precauții speciale pentru utilizatori

Nu se cunosc

14.7 Transportul în vrac, în conformitate cu anexa II la Convenția MARPOL și cu Codul IBC

Nu se cunosc

SECȚIUNEA 15: INFORMAȚII DE REGLEMENTARE

15.1 Regulamente/legislație în domeniul securității, al sănătății și al mediului specifice (specifică) pentru substanța sau amestecul în cauză

Regulamente europene – autorizații și/sau restricții privind utilizarea

Lista substanțelor care prezintă motive de îngrijorare deosebită candidate pentru autorizare

REACH: ANEXA XIV Lista Nu este inclusă.

substanțelor care fac obiectul autorizării

REACH: Anexa XVII Restricțiile Nu este inclusă.

privind producerea, introducerea pe piață

și utilizarea anumitor substanțe,

amestecuri și articole periculoase

Planul de acțiune flexibil comunitar (CoRAP) Nu este inclusă.

Regulamentul (CE) nr. 850/2004 al Nu este inclusă.

Parlamentului European și al Consiliului

privind poluanții organici persistenti

Regulamentul (CE) nr. 1005/2009 Nu este inclusă.

privind substanțele care diminuează

stratul de ozon

Regulamentul (CE) nr. 649/2012 al Nu este inclusă.

Parlamentului European și al Consiliului

privind exportul și importul de produse

chimice care prezintă risc

Regulamente naționale

Situația stocurilor

Menționată în: Australia, Canada (DSL), China, Japonia, Coreea, Taiwan, Noua Zeelandă (HSNO) – aprobare HSNO: HSR002503, Noua Zeelandă (NZIoC), Filipine.

15.2 Evaluarea securității chimice

A fost realizată o evaluare a securității chimice în conformitate cu REACH.

SECȚIUNEA 16: ALTE INFORMAȚII

Următoarele secțiuni conțin fraze revizuite sau noi:

1-16

LEGENDĂ

Pictograma de pericol



GHS08

Clasificarea pericolului

Repr. 2: Toxicitate pentru reproducere, categoria 2

Frază de pericol

H361f: Susceptibilă de a dăuna fertilității.

Fraze de precauție

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P280: Purtați mănuși de protecție/îmbrăcăminte de protecție/echipament de protecție a ochilor/echipament de protecție a feței.

P308+P313: În caz de expunere sau de posibilă expunere: consultați medicul.

P405: A se depozita sub cheie.

P501: Aruncați conținutul în conformitate cu legislația locală, statală sau națională.

Acronime

CAS: Chemical Abstracts Service (Serviciul de catalogare a produselor chimice)

CLP: Regulamentul (CE) nr. 1272/2008 privind clasificarea, etichetarea și ambalarea substanțelor și a amestecurilor

Data tipăririi: 6.10.2020

Versiunea nr.: 8

Revizia: 6.10.2020

DNEL: Nivel calculat fără efect (Derived No Effect Level)

CE: Comunitatea Europeană

LETL: Limită de expunere pe termen lung

PBT: Persistent, bioacumulativ și toxic

PNEC: Concentrație predictibilă fără efect (Predicted No Effect Concentration)

REACH: Înregistrarea, evaluarea, autorizarea și restricționarea substanțelor chimice

LETS: Limită de expunere pe termen scurt

STOT: Toxicitate asupra unui organ țintă specific (STOT – Specific target organ toxicity)

vPvB: foarte persistent și foarte bioacumulativ

Declinarea responsabilității

Informațiile conținute în prezenta publicație sau furnizate altfel utilizatorilor sunt considerate a fi exacte și sunt oferite cu bună credință, dar este responsabilitatea utilizatorului să se asigure că produsul este adecvat pentru propriul său scop.

Qatar Melamine Co nu oferă nicio garanție cu privire la adecvarea produsului pentru un scop specific și exclude orice garanție sau condiție implicită (de natură legală sau de orice altă natură), cu excepția cazului în care excluderea este împiedicată prin lege.

Qatar Melamine Co nu își asumă nicio responsabilitate pentru pierderea sau prejudiciul (altul decât cel apărut în urma decesului sau a rănirii cauzate de produsul defect, dacă este dovedită), rezultat din utilizarea acestor informații. Toate drepturile asupra brevetelor, drepturilor de autor, desenelor și modelelor sunt rezervate.

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1. Exposure Scenario 1: Formulation or re-packing - Formulation or re-packing

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		Formulation or re-packaging
Contributing scenario controlling environmental exposure		
CS1	Formulation or re-packaging	ERC2
Contributing scenario controlling worker exposure		
CS2	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions	PROC2
CS3	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions	PROC3
CS4	Chemical production where opportunity for exposure arises	PROC4
CS5	Mixing or blending in batch processes	PROC5
CS6	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities	PROC8a
CS7	Transfer of substance or mixture (charging and discharging) at dedicated facilities	PROC8b
CS8	Transfer of substance or mixture into small containers (dedicated filling line, including weighing)	PROC9
CS9	Tabletting, compression, extrusion, pelletisation, granulation	PROC14
CS10	Use as laboratory reagent	PROC15
CS11	Hand-mixing with intimate contact and only PPE available	PROC19
CS12	Manual maintenance (cleaning and repair) of machinery	PROC28
SECTION 2:		Conditions of use
2.1	Contributing scenario controlling environmental exposure: 1.1 Formulation or re-packaging (ERC 2)	
Amount used, frequency and duration of use (or from service life)		
Daily use amount at site: not relevant for the assessment as scenario specific releases are estimated Annual use amount at site: not relevant for the assessment as scenario specific releases are estimated		
Conditions and measures related to biological sewage treatment plant		
Biological STP: Standard [Effectiveness, Water: 0.169%] Discharge rate of STP: >= 2E3 m3/day Application of the STP sludge on agricultural soil: Yes		
Other given operational conditions affecting environmental exposure		
Receiving surface water flow: >= 1.8E4 m3/day		
2.2	Contributing scenario controlling worker exposure: 1.2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC 2)	
Product characteristics		
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)		
Frequency and duration of use		
Duration of activity: <= 8 h/day		
Technical conditions and measures to control dispersion from source towards the worker		
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]		
Conditions and measures related to personal protection, hygiene and health evaluation		
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: No [Effectiveness, Dermal: 0%]		

Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.3	Contributing scenario controlling worker exposure: 1.3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions (PROC 3)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: No [Effectiveness, Dermal: 0%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.4	Contributing scenario controlling worker exposure: 1.4 Chemical production where opportunity for exposure arises (PROC 4)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: No [Effectiveness, Dermal: 0%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.5	Contributing scenario controlling worker exposure: 1.5 Mixing or blending in batch processes (PROC 5)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced	

Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: ≤ 40 °C	
2.6	Contributing scenario controlling worker exposure: 1.6 Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC 8a)
Product characteristics	
Percentage (w/w) of substance in mixture/article: ≤ 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: ≤ 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: ≤ 40 °C	
2.7	Contributing scenario controlling worker exposure: 1.7 Transfer of substance or mixture (charging and discharging) at dedicated facilities (PROC 8b)
Product characteristics	
Percentage (w/w) of substance in mixture/article: ≤ 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: ≤ 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: ≤ 40 °C	
2.8	Contributing scenario controlling worker exposure: 1.8 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC 9)
Product characteristics	

Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes(Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.9	Contributing scenario controlling worker exposure: 1.9 Tableting, compression, extrusion, pelletisation, granulation (PROC 14)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: No [Effectiveness, Dermal: 0%]	
Place of use: Indoor Operating temperature: <= 40 °C	
2.10	Contributing scenario controlling worker exposure: 1.10 Use as laboratory reagent (PROC 15)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: No [Effectiveness, Dermal: 0%]	
2.11	Contributing scenario controlling worker exposure: 1.11 Hand-mixing with intimate contact and only PPE available (PROC 19)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 %	

Physical form of the used product: Solid (medium dusty form)		
Frequency and duration of use		
Duration of activity: <= 8 h/day		
Technical conditions and measures to control dispersion from source towards the worker		
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]		
Conditions and measures related to personal protection, hygiene and health evaluation		
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes(Chemically resistant gloves conforming to EN374 with specific activity training) and (other) appropriate dermal protection [Effectiveness, Dermal: 95%]		
Other given operational conditions affecting workers exposure		
Place of use: Indoor Operating temperature: <= 40 °C		
2.12	Contributing scenario controlling worker exposure: 1.12 Manual maintenance (cleaning and repair) of machinery (PROC 28)	
Product characteristics		
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)		
Frequency and duration of use		
Duration of activity: <= 8 h/day		
Technical conditions and measures to control dispersion from source towards the worker		
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]		
Conditions and measures related to personal protection, hygiene and health evaluation		
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes(Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]		
Other given operational conditions affecting workers exposure		
Place of use: Indoor Operating temperature: <= 40 °C		
SECTION 3:	1.13 Exposure estimation	
3.1. Environment		
Release	Release estimation method	Explanations
Water	Estimated release rate	Local release rate: 5 kg/day
Air	Estimated release rate	Local release rate: 1 kg/day
Non-Agricultural Soil	Estimated release factor	Release factor after on-site RMM: 0%
Protection target	Exposure concentration	Risk quantification (RCR)
Fresh water	Local PEC: 0.255 mg/l	0.5
Sedimentation (Fresh water)	Local PEC: 1.26 mg/kg dw	0.5
Marine water	Local PEC: 0.0255 mg/l	0.5
Sedimentation (Marine water)	Local PEC: 0.126 mg/kg dw	0.5
Sewage Treatment Plant	Local PEC: 2.496 mg/l	0.01
Agricultural soil	Local PEC: 0.029 mg/kg dw	0.14
Man via Environment - Inhalation (Systemic effects)	Concentration in air: 7.8E-5 mg/m ³	< 0.01

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Man via Environment - Oral	Exposure via food consumption: 0.017 mg/kgbw/day	0.04
Man via Environment - Combined routes		0.04
3.2. Worker		
Contributing scenario controlling worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions(PROC 2)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	0.5 mg/m ³	0.06
Inhalation, Systemic effects, Acute	2 mg/m ³	0.024
Dermal, Systemic effects, Long Term	1.37 mg/kgbw/day	0.116
Combined routes, Systemic effects, Long Term		0.176
Contributing scenario controlling worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions (PROC 3)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	1 mg/m ³	0.12
Inhalation, Systemic effects, Acute	4 mg/m ³	0.049
Dermal, Systemic effects, Long Term	0.69 mg/kgbw/day	0.058
Combined routes, Systemic effects, Long Term		0.179
Contributing scenario controlling worker exposure: Chemical production where opportunity for exposure arises (PROC 4)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	5 mg/m ³	0.602
Inhalation, Systemic effects, Acute	20 mg/m ³	0.243
Dermal, Systemic effects, Long Term	1.372 mg/kgbw/day	0.116
Combined routes, Systemic effects, Long Term		0.719
Contributing scenario controlling worker exposure: Mixing or blending in batch processes (PROC 5)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	5 mg/m ³	0.602
Inhalation, Systemic effects, Acute	20 mg/m ³	0.243
Dermal, Systemic effects, Long Term	2.742 mg/kgbw/day	0.232
Combined routes, Systemic effects, Long Term		0.835
Contributing scenario controlling worker exposure: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC 8a)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	5 mg/m ³	0.602
Inhalation, Systemic effects, Acute	20 mg/m ³	0.243
Dermal, Systemic effects, Long Term	2.742 mg/kgbw/day	0.232
Combined routes, Systemic effects, Long Term		0.835
Contributing scenario controlling worker exposure: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC 8b)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	1 mg/m ³	0.12
Inhalation, Systemic effects, Acute	4 mg/m ³	0.049
Dermal, Systemic effects, Long Term	2.742 mg/kgbw/day	0.232
Combined routes, Systemic effects, Long Term		0.353

Contributing scenario controlling worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC 9)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	5 mg/m³	0.602
Inhalation, Systemic effects, Acute	20 mg/m³	0.243
Dermal, Systemic effects, Long Term	1.372 mg/kgbw/day	0.116
Combined routes, Systemic effects, Long Term		0.719
Contributing scenario controlling worker exposure: Tabletting, compression, extrusion, pelletisation, granulation (PROC 14)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	1 mg/m³	0.12
Inhalation, Systemic effects, Acute	4 mg/m³	0.049
Dermal, Systemic effects, Long Term	3.43 mg/kgbw/day	0.291
Combined routes, Systemic effects, Long Term		0.411
Contributing scenario controlling worker exposure: Use as laboratory reagent (PROC 15)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	0.5 mg/m³	0.06
Inhalation, Systemic effects, Acute	2 mg/m³	0.024
Dermal, Systemic effects, Long Term	0.34 mg/kgbw/day	0.029
Combined routes, Systemic effects, Long Term		0.089
Contributing scenario controlling worker exposure: Hand-mixing with intimate contact and only PPE available (PROC 19)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	3 mg/m³	0.361
Inhalation, Systemic effects, Acute	20 mg/m³	0.243
Dermal, Systemic effects, Long Term	7.072 mg/kgbw/day	0.599
Combined routes, Systemic effects, Long Term		0.961
Contributing scenario controlling worker exposure: Manual maintenance (cleaning and repair) of machinery (PROC 28)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	5 mg/m³	0.602
Inhalation, Systemic effects, Acute	20 mg/m³	0.243
Dermal, Systemic effects, Long Term	2.742 mg/kgbw/day	0.232
Combined routes, Systemic effects, Long Term		0.835
SECTION 4:	1.14 Guidance to DU to evaluate whether he works inside the boundaries set by the ES	
<u>Remarks on exposure data from external estimation tools:</u> ECETOC TRA Workers 3.1: Explanation: The exposure estimates for PROC 8a are used, as TRA Workers cannot predict exposure for PROC 28 and these estimates can be considered suitable for estimating exposures during manual maintenance.		

2. Exposure Scenario 2: Use at industrial sites - Use as intermediate for resins (reacted melamine)

SECTION 1:		Title of exposure scenario
		Use at industrial sites - Use as intermediate for resins (reacted melamine)
Contributing scenario controlling environmental exposure		
CS1	Use as intermediate for resins (reacted melamine)	ERC6a, ERC6c
Contributing scenario controlling worker exposure		
CS2	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions	PROC1
CS3	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions	PROC2
CS4	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions	PROC3
CS5	Chemical production where opportunity for exposure arises	PROC4
CS6	Mixing or blending in batch processes	PROC5
CS7	Calendering operations	PROC6
CS8	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities	PROC8a
CS9	Transfer of substance or mixture (charging and discharging) at dedicated facilities	PROC8b
CS10	Transfer of substance or mixture into small containers (dedicated filling line, including weighing)	PROC9
CS11	Tabletting, compression, extrusion, pelletisation, granulation	PROC14
CS12	Use as laboratory reagent	PROC15
CS13	Manual maintenance (cleaning and repair) of machinery	PROC28
SECTION 2:		Conditions of use
2.1	Contributing scenario controlling environmental exposure: 2.1 Use as intermediate for resins (reacted melamine) (ERC 6a; ERC 6c)	
Amount used, frequency and duration of use (or from service life)		
Daily use amount at site: not relevant for the assessment as scenario specific releases are estimated Annual use amount at site: not relevant for the assessment as scenario specific releases are estimated		
Conditions and measures related to biological sewage treatment plant		
Biological STP: Standard [Effectiveness, Water: 0.169%] Discharge rate of STP: >= 2E3 m3/day Application of the STP sludge on agricultural soil: Yes		
Other given operational conditions affecting environmental exposure		
Receiving surface water flow: >= 1.8E4 m3/day		
2.2	Contributing scenario controlling worker exposure: 2.2 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC 1)	
Product characteristics		
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)		
Frequency and duration of use		
Duration of activity: <= 8 h/day		
Technical conditions and measures to control dispersion from source towards the worker		
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]		
Conditions and measures related to personal protection, hygiene and health evaluation		

Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: No [Effectiveness, Dermal: 0%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.3	Contributing scenario controlling worker exposure: 2.3 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC 2)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: No [Effectiveness, Dermal: 0%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.4	Contributing scenario controlling worker exposure: 2.4 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions (PROC 3)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: No [Effectiveness, Dermal: 0%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.5	Contributing scenario controlling worker exposure: 2.5 Chemical production where opportunity for exposure arises (PROC 4)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: <= 8 h/day	

Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.6	Contributing scenario controlling worker exposure: 2.6 Mixing or blending in batch processes (PROC 5)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.7	Contributing scenario controlling worker exposure: 2.7 Calendering operations (PROC 6)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness, Dermal: 90%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.8	Contributing scenario controlling worker exposure: 2.8 Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC 8a)

Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes(Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.9	Contributing scenario controlling worker exposure: 2.9 Transfer of substance or mixture (charging and discharging) at dedicated facilities (PROC 8b)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes(Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.10	Contributing scenario controlling worker exposure: 2.10 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC 9)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes(Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection	

[Effectiveness, Dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.11	Contributing scenario controlling worker exposure: 2.11 Tabletting, compression, extrusion, pelletisation, granulation (PROC 14)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: No [Effectiveness, Dermal: 0%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.12	Contributing scenario controlling worker exposure: 2.12 Use as laboratory reagent (PROC 15)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: No [Effectiveness, Dermal: 0%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.13	Contributing scenario controlling worker exposure: 2.13 Manual maintenance (cleaning and repair) of machinery (PROC 28)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	

Conditions and measures related to personal protection, hygiene and health evaluation			
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes(Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]			
Other given operational conditions affecting workers exposure			
Place of use: Indoor Operating temperature: <= 40 °C			
SECTION 3:	2.14 Exposure estimation		
3.1. Environment			
Release	Release estimation method	Explanations	
Water	Estimated release rate	Local release rate: 3 kg/day	
Air	Estimated release rate	Local release rate: 0.5 kg/day	
Non-Agricultural Soil	Estimated release factor	Release factor after on-site RMM: 0%	
Protection target		Exposure concentration	Risk quantification (RCR)
Fresh water		Local PEC: 0.155 mg/l	0.3
Sedimentation (Fresh water)		Local PEC: 1.26 mg/kg dw	0.3
Marine water		Local PEC: 0.0255 mg/l	0.3
Sedimentation (Marine water)		Local PEC: 0.126 mg/kg dw	0.3
Sewage Treatment Plant		Local PEC: 2.496 mg/l	< 0.01
Agricultural soil		Local PEC: 0.029 mg/kg dw	0.08
Man via Environment - Inhalation (Systemic effects)		Concentration in air: 7.8E-5 mg/m³	< 0.01
Man via Environment - Oral		Exposure via food consumption: 0.017 mg/kgbw/day	0.04
Man via Environment - Combined routes			0.02
3.2. Worker			
Contributing scenario controlling worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC 1)			
Exposure route		Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term		0.01 mg/m³	< 0.01
Inhalation, Systemic effects, Acute		0.04 mg/m³	< 0.01
Dermal, Systemic effects, Long Term		0.034 mg/kgbw/day	< 0.01
Combined routes, Systemic effects, Long Term			< 0.01
Contributing scenario controlling worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions(PROC 2)			
Exposure route		Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term		0.5 mg/m³	0.06
Inhalation, Systemic effects, Acute		2 mg/m³	0.024
Dermal, Systemic effects, Long Term		1.37 mg/kgbw/day	0.116
Combined routes, Systemic effects, Long Term			0.176
Contributing scenario controlling worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions (PROC 3)			
Exposure route		Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term		1 mg/m³	0.12
Inhalation, Systemic effects, Acute		4 mg/m³	0.049
Dermal, Systemic effects, Long Term		0.69 mg/kgbw/day	0.058

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Combined routes, Systemic effects, Long Term		0.179
Contributing scenario controlling worker exposure: Chemical production where opportunity for exposure arises (PROC 4)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	5 mg/m ³	0.602
Inhalation, Systemic effects, Acute	20 mg/m ³	0.243
Dermal, Systemic effects, Long Term	1.372 mg/kgbw/day	0.116
Combined routes, Systemic effects, Long Term		0.719
Contributing scenario controlling worker exposure: Mixing or blending in batch processes (PROC 5)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	5 mg/m ³	0.602
Inhalation, Systemic effects, Acute	20 mg/m ³	0.243
Dermal, Systemic effects, Long Term	2.742 mg/kgbw/day	0.232
Combined routes, Systemic effects, Long Term		0.835
Contributing scenario controlling worker exposure: Calendering operations (PROC 6)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	5 mg/m ³	0.602
Inhalation, Systemic effects, Acute	20 mg/m ³	0.243
Dermal, Systemic effects, Long Term	2.743 mg/kgbw/day	0.232
Combined routes, Systemic effects, Long Term		0.835
Contributing scenario controlling worker exposure: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC 8a)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	5 mg/m ³	0.602
Inhalation, Systemic effects, Acute	20 mg/m ³	0.243
Dermal, Systemic effects, Long Term	2.742 mg/kgbw/day	0.232
Combined routes, Systemic effects, Long Term		0.835
Contributing scenario controlling worker exposure: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC 8b)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	1 mg/m ³	0.12
Inhalation, Systemic effects, Acute	4 mg/m ³	0.049
Dermal, Systemic effects, Long Term	2.742 mg/kgbw/day	0.232
Combined routes, Systemic effects, Long Term		0.353
Contributing scenario controlling worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC 9)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	5 mg/m ³	0.602
Inhalation, Systemic effects, Acute	20 mg/m ³	0.243
Dermal, Systemic effects, Long Term	1.372 mg/kgbw/day	0.116
Combined routes, Systemic effects, Long Term		0.719
Contributing scenario controlling worker exposure: Tabletting, compression, extrusion, pelletisation, granulation (PROC 14)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	1 mg/m ³	0.12

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Inhalation, Systemic effects, Acute	4 mg/m³	0.049
Dermal, Systemic effects, Long Term	3.43 mg/kgbw/day	0.291
Combined routes, Systemic effects, Long Term		0.411
Contributing scenario controlling worker exposure:Use as laboratory reagent (PROC 15)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	0.5 mg/m³	0.06
Inhalation, Systemic effects, Acute	2 mg/m³	0.024
Dermal, Systemic effects, Long Term	0.34 mg/kgbw/day	0.029
Combined routes, Systemic effects, Long Term		0.089
Contributing scenario controlling worker exposure:Manual maintenance (cleaning and repair) of machinery (PROC 28)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	5 mg/m³	0.602
Inhalation, Systemic effects, Acute	20 mg/m³	0.243
Dermal, Systemic effects, Long Term	2.742 mg/kgbw/day	0.232
Combined routes, Systemic effects, Long Term		0.835
SECTION 4:	2.15 Guidance to DU to evaluate whether he works inside the boundaries set by the ES	
Remarks on exposure data from external estimation tools: ECETOC TRA Workers 3.1: Explanation: The exposure estimates for PROC 8a are used, as TRA Workers cannot predict exposure for PROC 28 and these estimates can be considered suitable for estimating exposures during manual maintenance.		

3. Exposure Scenario 3: Use at industrial sites - Use of resins with unreacted residual melamine

SECTION 1:		Title of exposure scenario
		Use at industrial sites - Use of resins with unreacted residual melamine
Contributing scenario controlling environmental exposure		
CS1	Use of resins with unreacted residual melamine	ERC5
Contributing scenario controlling worker exposure		
CS2	Industrial spraying	PROC7
CS3	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities	PROC8a
CS4	Transfer of substance or mixture (charging and discharging) at dedicated facilities	PROC8b
CS5	Roller application or brushing	PROC10
CS6	Hand-mixing with intimate contact and only PPE available	PROC19
CS7	Manual maintenance (cleaning and repair) of machinery	PROC28
SECTION 2:		Conditions of use
2.1		Contributing scenario controlling environmental exposure: 3.1 Use of resins with unreacted residual melamine (ERC 5)
Amount used, frequency and duration of use (or from service life)		
Daily use amount at site: not relevant for the assessment as scenario specific releases are estimated Annual use amount at site: not relevant for the assessment as scenario specific releases are estimated		
Conditions and measures related to biological sewage treatment plant		
Biological STP: Standard [Effectiveness, Water: 0.169%] Discharge rate of STP: >= 2E3 m3/day Application of the STP sludge on agricultural soil: Yes		
Other given operational conditions affecting environmental exposure		
Receiving surface water flow: >= 1.8E4 m3/day		
2.2		Contributing scenario controlling worker exposure: 3.2 Industrial spraying (PROC 7)
Product characteristics		
Percentage (w/w) of substance in mixture/article: <= 5 % Physical form of the used product: Liquid		
Frequency and duration of use		
Duration of activity: <= 8 h/day		
Technical conditions and measures to control dispersion from source towards the worker		
Ventilation working room: General ventilation (mechanical) Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]		
Conditions and measures related to personal protection, hygiene and health evaluation		
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes(Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]		
Other given operational conditions affecting workers exposure		
Place of use: Indoor Operating temperature: <= 40 °C		
2.3		Contributing scenario controlling worker exposure: 3.3 Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC 8a)
Product characteristics		
Percentage (w/w) of substance in mixture/article: <= 5 %		

Physical form of the used product: Liquid	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: No [Effectiveness, Dermal: 0%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.4	Contributing scenario controlling worker exposure: 3.4 Transfer of substance or mixture (charging and discharging) at dedicated facilities (PROC 8b)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 5 % Physical form of the used product: Liquid	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: No [Effectiveness, Dermal: 0%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.5	Contributing scenario controlling worker exposure: 3.5 Roller application or brushing (PROC 10)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 5 % Physical form of the used product: Liquid	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
Ventilation working room: General ventilation (mechanical) Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: No [Effectiveness, Dermal: 0%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.6	Contributing scenario controlling worker exposure:

3.6 Hand-mixing with intimate contact and only PPE available (PROC 19)		
Product characteristics		
Percentage (w/w) of substance in mixture/article: <= 5 % Physical form of the used product: Liquid		
Frequency and duration of use		
Duration of activity: <= 8 h/day		
Technical conditions and measures to control dispersion from source towards the worker		
Ventilation working room: General ventilation (mechanical) Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]		
Conditions and measures related to personal protection, hygiene and health evaluation		
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes(Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]		
Other given operational conditions affecting workers exposure		
Place of use: Indoor Operating temperature: <= 40 °C		
2.7	Contributing scenario controlling worker exposure: 3.7 Manual maintenance (cleaning and repair) of machinery (PROC 28)	
Product characteristics		
Percentage (w/w) of substance in mixture/article: <= 5 % Physical form of the used product: Liquid		
Frequency and duration of use		
Duration of activity: <= 8 h/day		
Technical conditions and measures to control dispersion from source towards the worker		
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]		
Conditions and measures related to personal protection, hygiene and health evaluation		
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: No [Effectiveness, Dermal: 0%]		
Other given operational conditions affecting workers exposure		
Place of use: Indoor Operating temperature: <= 40 °C		
SECTION 3:	3.8 Exposure estimation	
3.1. Environment		
Release	Release estimation method	Explanations
Water	Estimated release rate	Local release rate: 0.5 kg/day
Air	Estimated release rate	Local release rate: 0 kg/day
Non-Agricultural Soil	Estimated release factor	Release factor after on-site RMM: 0%
Protection target	Exposure concentration	Risk quantification (RCR)
Fresh water	Local PEC: 0.03 mg/l	0.06
Sedimentation (Fresh water)	Local PEC: 0.148 mg/kg dw	0.06
Marine water	Local PEC: 3E-3 mg/l	0.06
Sedimentation (Marine water)	Local PEC: 0.015 mg/kg dw	0.06
Sewage Treatment Plant	Local PEC: 0.25 mg/l	< 0.01
Agricultural soil	Local PEC: 2.2E-3 mg/kg dw	0.01

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Man via Environment - Inhalation (Systemic effects)	Concentration in air: 9.8E-16 mg/m ³	< 0.01
Man via Environment - Oral	Exposure via food consumption: 1.09E-3 mg/kgbw/day	< 0.01
Man via Environment - Combined routes		< 0.01
3.2. Worker		
Contributing scenario controlling worker exposure: Industrial spraying (PROC 7)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	2.43 mg/m ³	0.293
Inhalation, Systemic effects, Acute	2.43 mg/m ³	0.03
Dermal, Systemic effects, Long Term	1.714 mg/kgbw/day	0.145
Combined routes, Systemic effects, Long Term		0.438
Contributing scenario controlling worker exposure: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC 8a)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	0.105 mg/m ³	0.013
Inhalation, Systemic effects, Acute	0.105 mg/m ³	< 0.01
Dermal, Systemic effects, Long Term	2.74 mg/kgbw/day	0.232
Combined routes, Systemic effects, Long Term		0.245
Contributing scenario controlling worker exposure: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC 8b)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	0.105 mg/m ³	0.013
Inhalation, Systemic effects, Acute	0.105 mg/m ³	< 0.01
Dermal, Systemic effects, Long Term	2.74 mg/kgbw/day	0.232
Combined routes, Systemic effects, Long Term		0.245
Contributing scenario controlling worker exposure: Roller application or brushing (PROC 10)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	1.1 mg/m ³	0.133
Inhalation, Systemic effects, Acute	1.1 mg/m ³	0.013
Dermal, Systemic effects, Long Term	5.486 mg/kgbw/day	0.465
Combined routes, Systemic effects, Long Term		0.597
Contributing scenario controlling worker exposure: Hand-mixing with intimate contact and only PPE available (PROC 19)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	0.53 mg/m ³	0.064
Inhalation, Systemic effects, Acute	0.53 mg/m ³	< 0.01
Dermal, Systemic effects, Long Term	5.657 mg/kgbw/day	0.479
Combined routes, Systemic effects, Long Term		0.543
Contributing scenario controlling worker exposure: Manual maintenance (cleaning and repair) of machinery (PROC 28)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	0.105 mg/m ³	0.013
Inhalation, Systemic effects, Acute	0.105 mg/m ³	< 0.01
Dermal, Systemic effects, Long Term	2.74 mg/kgbw/day	0.232
Combined routes, Systemic effects, Long Term		0.245

SECTION 4:	3.9 Guidance to DU to evaluate whether he works inside the boundaries set by the ES
<p><u>Remarks on exposure data from external estimation tools:</u></p> <p>Stoffenmanager 8: Explanation: Inhalation exposure concentration estimated using Stoffenmanager® (version 8)</p> <ul style="list-style-type: none"> - Activity/type of task: Handling of liquids at high pressure resulting in substantial generation of mist or spray/haze - Distance to task: In the breathing zone of the worker (distance head-product < 1 m) (worst-case assumption) - Local controls: No control measures at the source - Ventilation working room: General ventilation (mechanical) - Volume of the working room: 100-1000 m³ - Regular cleaning of work area (daily): Yes - Regular inspection and maintenance (at least monthly): Yes - Presence of secondary emission sources (worst-case assumptions); <p>Other workers using the same substance simultaneously: Yes</p> <p>A period of evaporation, drying or curing after the activity (with prolonged emission of vapours): Yes</p> <p>The concentration that can be inhaled by the worker during the task due to the activity undertaken is obtained. As the task is performed for 8 hours, the daily average concentration equals the task concentration. In accordance with the ECHA Guidance (Chapter R.14), this estimated concentration is therefore considered to be the short-term as well as the long-term inhalation exposure estimate (90th percentiles).</p> <p>ECETOC TRA Workers 3.1: Explanation: As solid is used as value for CSA, while liquid is used, it is considered appropriate to refine the exposure estimates, using the standalone version of TRA Workers (v3.1). The vapour pressure at operating temperature (40°C) used for the calculation is 3.71E-8 Pa (as calculated by Chesar).</p> <p>Stoffenmanager 8: Explanation: Inhalation exposure concentration estimated using Stoffenmanager® (version 8)</p> <ul style="list-style-type: none"> - Activity/type of task: Handling of liquids on large surfaces or large work pieces - Distance to task: In the breathing zone of the worker (distance head-product < 1 m) (worst-case assumption) - Local controls: No control measures at the source - Ventilation working room: General ventilation (mechanical) - Volume of the working room: 100-1000 m³ - Regular cleaning of work area (daily): Yes - Regular inspection and maintenance (at least monthly): Yes - Presence of secondary emission sources (worst-case assumptions); <p>Other workers using the same substance simultaneously: Yes</p> <p>A period of evaporation, drying or curing after the activity (with prolonged emission of vapours): Yes</p> <p>The concentration that can be inhaled by the worker during the task due to the activity undertaken is obtained. As the task is performed for 8 hours, the daily average concentration equals the task concentration. In accordance with the ECHA Guidance (Chapter R.14), this estimated concentration is therefore considered to be the short-term as well as the long-term inhalation exposure estimate (90th percentiles).</p> <p>Stoffenmanager 8: Explanation: Inhalation exposure concentration estimated using Stoffenmanager® (version 8)</p> <ul style="list-style-type: none"> - Activity/type of task: Handling of liquids using low pressure, low speed or on medium-sized surfaces - Distance to task: In the breathing zone of the worker (distance head-product < 1 m) (worst-case assumption) - Local controls: No control measures at the source - Ventilation working room: General ventilation (mechanical) - Volume of the working room: 100-1000 m³ - Regular cleaning of work area (daily): Yes - Regular inspection and maintenance (at least monthly): Yes - Presence of secondary emission sources (worst-case assumptions); <p>Other workers using the same substance simultaneously: Yes</p> <p>A period of evaporation, drying or curing after the activity (with prolonged emission of vapours): Yes</p> <p>The concentration that can be inhaled by the worker during the task due to the activity undertaken is obtained. As the task is performed for 8 hours, the daily average concentration equals the task concentration. In accordance with the ECHA Guidance (Chapter R.14), this estimated concentration is therefore considered to be the short-term as well as the long-term inhalation exposure estimate (90th percentiles).</p> <p>ECETOC TRA Workers 3.1: Explanation: The exposure estimates for PROC 8a are used, as TRA Workers cannot predict exposure for PROC 28 and these estimates can be considered suitable for estimating exposures during manual maintenance. The exposure estimates are calculated for using a liquid, with the standalone version of TRA Workers (v3.1). The vapour pressure at operating</p>	

temperature (40°C) used for the calculation is 3.71E-8 Pa (as calculated by Chesar).

4. Exposure Scenario 4: Use at industrial sites - Use as intermediate for the production of other substances e.g. melamine salt (reacted melamine)

SECTION 1:		Title of exposure scenario
		Use at industrial sites - Use as intermediate for the production of other substances e.g. melamine salt (reacted melamine)
Contributing scenario controlling environmental exposure		
CS1	Use as intermediate for the production of other substances e.g. melamine salt (reacted melamine)	ERC6a
Contributing scenario controlling worker exposure		
CS2	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions	PROC1
CS3	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions	PROC2
CS4	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions	PROC3
CS5	Chemical production where opportunity for exposure arises	PROC4
CS6	Mixing or blending in batch processes	PROC5
CS7	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities	PROC8a
CS8	Transfer of substance or mixture (charging and discharging) at dedicated facilities	PROC8b
CS9	Transfer of substance or mixture into small containers (dedicated filling line, including weighing)	PROC9
CS10	Use as laboratory reagent	PROC15
CS11	Manual maintenance (cleaning and repair) of machinery	PROC28
SECTION 2:		Conditions of use
2.1		Contributing scenario controlling environmental exposure: 4.1 Use as intermediate for the production of other substances e.g. melamine salt (reacted melamine) (ERC 6a)
Amount used, frequency and duration of use (or from service life)		
Daily use amount at site: not relevant for the assessment as scenario specific releases are estimated Annual use amount at site: not relevant for the assessment as scenario specific releases are estimated		
Conditions and measures related to biological sewage treatment plant		
Biological STP: Standard [Effectiveness, Water: 0.169%] Discharge rate of STP: >= 2E3 m3/day Application of the STP sludge on agricultural soil: Yes		
Other given operational conditions affecting environmental exposure		
Receiving surface water flow: >= 1.8E4 m3/day		
2.2		Contributing scenario controlling worker exposure: 4.2 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC 1)
Product characteristics		
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)		
Frequency and duration of use		
Duration of activity: <= 8 h/day		
Technical conditions and measures to control dispersion from source towards the worker		
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]		

Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: No [Effectiveness, Dermal: 0%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.3	Contributing scenario controlling worker exposure: 4.3 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC 2)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: No [Effectiveness, Dermal: 0%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.4	Contributing scenario controlling worker exposure: 4.4 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions (PROC 3)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: No [Effectiveness, Dermal: 0%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.5	Contributing scenario controlling worker exposure: 4.5 Chemical production where opportunity for exposure arises (PROC 4)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	

Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes(Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.6	Contributing scenario controlling worker exposure: 4.6 Mixing or blending in batch processes (PROC 5)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes(Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.7	Contributing scenario controlling worker exposure: 4.7 Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC 8a)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes(Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.8	Contributing scenario controlling worker exposure:

	4.8 Transfer of substance or mixture (charging and discharging) at dedicated facilities (PROC 8b)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes(Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.9	Contributing scenario controlling worker exposure: 4.9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC 9)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes(Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.10	Contributing scenario controlling worker exposure: 4.10 Use as laboratory reagent (PROC 15)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	

Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: No [Effectiveness, Dermal: 0%]		
Other given operational conditions affecting workers exposure		
Place of use: Indoor Operating temperature: <= 40 °C		
2.11	Contributing scenario controlling worker exposure: 4.11 Manual maintenance (cleaning and repair) of machinery (PROC 28)	
Product characteristics		
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)		
Frequency and duration of use		
Duration of activity: <= 8 h/day		
Technical conditions and measures to control dispersion from source towards the worker		
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]		
Conditions and measures related to personal protection, hygiene and health evaluation		
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]		
Other given operational conditions affecting workers exposure		
Place of use: Indoor Operating temperature: <= 40 °C		
SECTION 3:	4.12 Exposure estimation	
3.1. Environment		
Release	Release estimation method	Explanations
Water	Estimated release rate	Local release rate: 3 kg/day
Air	Estimated release rate	Local release rate: 0.5 kg/day
Non-Agricultural Soil	Estimated release factor	Release factor after on-site RMM: 0%
Protection target	Exposure concentration	Risk quantification (RCR)
Fresh water	Local PEC: 0.155 mg/l	0.3
Sedimentation (Fresh water)	Local PEC: 0.766 mg/kg dw	0.3
Marine water	Local PEC: 0.0155 mg/l	0.3
Sedimentation (Marine water)	Local PEC: 0.077 mg/kg dw	0.3
Sewage Treatment Plant	Local PEC: 1.497 mg/l	< 0.01
Agricultural soil	Local PEC: 0.02917 mg/kg dw	0.08
Man via Environment - Inhalation (Systemic effects)	Concentration in air: 3.97E-5 mg/m ³	< 0.01
Man via Environment - Oral	Exposure via food consumption: 9.7E-3 mg/kgbw/day	0.02
Man via Environment – Combined routes		0.02
3.2. Worker		
Contributing scenario controlling worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC 1)		
Exposure route	Exposure estimate - Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	0.01 mg/m ³	< 0.01
Inhalation, Systemic effects, Acute	0.04 mg/m ³	< 0.01

Melamină

Dermal, Systemic effects, Long Term	0.034 mg/kgbw/day	< 0.01
Combined routes, Systemic effects, Long Term		< 0.01
Contributing scenario controlling worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions(PROC 2)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	0.5 mg/m ³	0.06
Inhalation, Systemic effects, Acute	2 mg/m ³	0.024
Dermal, Systemic effects, Long Term	1.37 mg/kgbw/day	0.116
Combined routes, Systemic effects, Long Term		0.176
Contributing scenario controlling worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions (PROC 3)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	1 mg/m ³	0.12
Inhalation, Systemic effects, Acute	4 mg/m ³	0.049
Dermal, Systemic effects, Long Term	0.69 mg/kgbw/day	0.058
Combined routes, Systemic effects, Long Term		0.179
Contributing scenario controlling worker exposure: Chemical production where opportunity for exposure arises (PROC 4)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	5 mg/m ³	0.602
Inhalation, Systemic effects, Acute	20 mg/m ³	0.243
Dermal, Systemic effects, Long Term	1.372 mg/kgbw/day	0.116
Combined routes, Systemic effects, Long Term		0.719
Contributing scenario controlling worker exposure: Mixing or blending in batch processes (PROC 5)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	5 mg/m ³	0.602
Inhalation, Systemic effects, Acute	20 mg/m ³	0.243
Dermal, Systemic effects, Long Term	2.742 mg/kgbw/day	0.232
Combined routes, Systemic effects, Long Term		0.835
Contributing scenario controlling worker exposure: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC 8a)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	5 mg/m ³	0.602
Inhalation, Systemic effects, Acute	20 mg/m ³	0.243
Dermal, Systemic effects, Long Term	2.742 mg/kgbw/day	0.232
Combined routes, Systemic effects, Long Term		0.835
Contributing scenario controlling worker exposure: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC 8b)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	1 mg/m ³	0.12
Inhalation, Systemic effects, Acute	4 mg/m ³	0.049
Dermal, Systemic effects, Long Term	2.742 mg/kgbw/day	0.232
Combined routes, Systemic effects, Long Term		0.353
Contributing scenario controlling worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC 9)		

Melamină

Exposure route		Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term		5 mg/m³	0.602
Inhalation, Systemic effects, Acute		20 mg/m³	0.243
Dermal, Systemic effects, Long Term		1.372 mg/kgbw/day	0.116
Combined routes, Systemic effects, Long Term			0.719
Contributing scenario controlling worker exposure:Use as laboratory reagent (PROC 15)			
Exposure route		Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term		0.5 mg/m³	0.06
Inhalation, Systemic effects, Acute		2 mg/m³	0.024
Dermal, Systemic effects, Long Term		0.34 mg/kgbw/day	0.029
Combined routes, Systemic effects, Long Term			0.089
Contributing scenario controlling worker exposure:Manual maintenance (cleaning and repair) of machinery (PROC 28)			
Exposure route		Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term		5 mg/m³	0.602
Inhalation, Systemic effects, Acute		20 mg/m³	0.243
Dermal, Systemic effects, Long Term		2.742 mg/kgbw/day	0.232
Combined routes, Systemic effects, Long Term			0.835
SECTION 4:		4.13 Guidance to DU to evaluate whether he works inside the boundaries set by the ES	
Remarks on exposure data from external estimation tools: ECETOC TRA Workers 3.1: Explanation: The exposure estimates for PROC 8a are used, as TRA Workers cannot predict exposure for PROC 28 and these estimates can be considered suitable for estimating exposures during manual maintenance.			

5. Exposure Scenario 5: Use at industrial sites - Use as additive in foams

SECTION 1:		Title of exposure scenario
		Use at industrial sites - Use as additive in foams
Contributing scenario controlling environmental exposure		
CS1	Use as additive in foams	ERC5
Contributing scenario controlling worker exposure		
CS2	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions	PROC1
CS3	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions	PROC2
CS4	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions	PROC3
CS5	Chemical production where opportunity for exposure arises	PROC4
CS6	Mixing or blending in batch processes	PROC5
CS7	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities	PROC8a
CS8	Transfer of substance or mixture (charging and discharging) at dedicated facilities	PROC8b
CS9	Transfer of substance or mixture into small containers (dedicated filling line, including weighing)	PROC9
CS10	Use as laboratory reagent	PROC15
CS11	Hand-mixing with intimate contact and only PPE available	PROC19
CS12	Manual maintenance (cleaning and repair) of machinery	PROC28
Subsequent service life exposure scenario(s):		
ES8	Service life (worker at industrial site) - PU foams - Workers (industrial)	
ES11	Service life (consumers) - PU foams – Consumers	
SECTION 2:		Conditions of use
2.1		Contributing scenario controlling environmental exposure: 5.1 Use as additive in foams (ERC 5)
Amount used, frequency and duration of use (or from service life)		
Daily use amount at site: not relevant for the assessment as scenario specific releases are estimated Annual use amount at site: not relevant for the assessment as scenario specific releases are estimated		
Conditions and measures related to biological sewage treatment plant		
Biological STP: Standard [Effectiveness, Water: 0.169%] Discharge rate of STP: >= 2E3 m3/day Application of the STP sludge on agricultural soil: Yes		
Other given operational conditions affecting environmental exposure		
Receiving surface water flow: >= 1.8E4 m3/day		
2.2		Contributing scenario controlling worker exposure: 5.2 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC 1)
Product characteristics		
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)		
Frequency and duration of use		
Duration of activity: <= 8 h/day		
Technical conditions and measures to control dispersion from source towards the worker		
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced		

Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: No [Effectiveness, Dermal: 0%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.3	Contributing scenario controlling worker exposure: 5.3 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC 2)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: No [Effectiveness, Dermal: 0%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.4	Contributing scenario controlling worker exposure: 5.4 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions (PROC 3)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: No [Effectiveness, Dermal: 0%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.5	Contributing scenario controlling worker exposure: 5.5 Chemical production where opportunity for exposure arises (PROC 4)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	

Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes(Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.6	Contributing scenario controlling worker exposure: 5.6 Mixing or blending in batch processes (PROC 5)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes(Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.7	Contributing scenario controlling worker exposure: 5.7 Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC 8a)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes(Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	

2.8	Contributing scenario controlling worker exposure: 5.8 Transfer of substance or mixture (charging and discharging) at dedicated facilities (PROC 8b)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.9	Contributing scenario controlling worker exposure: 5.9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC 9)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.10	Contributing scenario controlling worker exposure: 5.10 Use as laboratory reagent (PROC 15)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	

Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: No [Effectiveness, Dermal: 0%]		
Other given operational conditions affecting workers exposure		
Place of use: Indoor Operating temperature: <= 40 °C		
2.11	Contributing scenario controlling worker exposure: 5.11 Hand-mixing with intimate contact and only PPE available (PROC 19)	
Product characteristics		
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)		
Frequency and duration of use		
Duration of activity: <= 4 h/day		
Technical conditions and measures to control dispersion from source towards the worker		
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]		
Conditions and measures related to personal protection, hygiene and health evaluation		
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes(Chemically resistant gloves conforming to EN374 with specific activity training) and (other) appropriate dermal protection [Effectiveness, Dermal: 95%]		
Other given operational conditions affecting workers exposure		
Place of use: Indoor Operating temperature: <= 40 °C		
2.12	Contributing scenario controlling worker exposure: 5.12 Manual maintenance (cleaning and repair) of machinery (PROC 28)	
Product characteristics		
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)		
Frequency and duration of use		
Duration of activity: <= 8 h/day		
Technical conditions and measures to control dispersion from source towards the worker		
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]		
Conditions and measures related to personal protection, hygiene and health evaluation		
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes(Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]		
Other given operational conditions affecting workers exposure		
Place of use: Indoor Operating temperature: <= 40 °C		
SECTION 3:	5.13 Exposure estimation	
3.1. Environment		
Release	Release estimation method	Explanations
Water	Estimated release rate	Local release rate: 3 kg/day
Air	Estimated release rate	Local release rate: 0.5 kg/day
Non-Agricultural Soil	Estimated release factor	Release factor after on-site RMM: 0%
Protection target	Exposure concentration	Risk quantification (RCR)

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Fresh water	Local PEC: 0.155 mg/l	0.3
Sedimentation (Fresh water)	Local PEC: 0.766 mg/kg dw	0.3
Marine water	Local PEC: 0.0155 mg/l	0.3
Sedimentation (Marine water)	Local PEC: 0.077 mg/kg dw	0.3
Sewage Treatment Plant	Local PEC: 1.497 mg/l	< 0.01
Agricultural soil	Local PEC: 0.017 mg/kg dw	0.08
Man via Environment - Inhalation (Systemic effects)	Concentration in air: 3.971E-5 mg/m ³	< 0.01
Man via Environment - Oral	Exposure via food consumption: 9.7E-3 mg/kgbw/day	0.02
Man via Environment – Combined routes		0.02

3.2. Worker

Contributing scenario controlling worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC 1)

Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	0.01 mg/m ³	< 0.01
Inhalation, Systemic effects, Acute	0.04 mg/m ³	< 0.01
Dermal, Systemic effects, Long Term	0.034 mg/kgbw/day	< 0.01
Combined routes, Systemic effects, Long Term		< 0.01

Contributing scenario controlling worker exposure: Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC 2)

Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	0.5 mg/m ³	0.06
Inhalation, Systemic effects, Acute	2 mg/m ³	0.024
Dermal, Systemic effects, Long Term	1.37 mg/kgbw/day	0.116
Combined routes, Systemic effects, Long Term		0.176

Contributing scenario controlling worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions (PROC 3)

Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	1 mg/m ³	0.12
Inhalation, Systemic effects, Acute	4 mg/m ³	0.049
Dermal, Systemic effects, Long Term	0.69 mg/kgbw/day	0.058
Combined routes, Systemic effects, Long Term		0.179

Contributing scenario controlling worker exposure: Chemical production where opportunity for exposure arises (PROC 4)

Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	5 mg/m ³	0.602
Inhalation, Systemic effects, Acute	20 mg/m ³	0.243
Dermal, Systemic effects, Long Term	1.372 mg/kgbw/day	0.116
Combined routes, Systemic effects, Long Term		0.719

Contributing scenario controlling worker exposure: Mixing or blending in batch processes (PROC 5)

Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	5 mg/m ³	0.602
Inhalation, Systemic effects, Acute	20 mg/m ³	0.243
Dermal, Systemic effects, Long Term	2.742 mg/kgbw/day	0.232

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Combined routes, Systemic effects, Long Term		0.835
Contributing scenario controlling worker exposure: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC 8a)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	5 mg/m³	0.602
Inhalation, Systemic effects, Acute	20 mg/m³	0.243
Dermal, Systemic effects, Long Term	2.742 mg/kgbw/day	0.232
Combined routes, Systemic effects, Long Term		0.835
Contributing scenario controlling worker exposure: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC 8b)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	1 mg/m³	0.12
Inhalation, Systemic effects, Acute	4 mg/m³	0.049
Dermal, Systemic effects, Long Term	2.742 mg/kgbw/day	0.232
Combined routes, Systemic effects, Long Term		0.353
Contributing scenario controlling worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC 9)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	5 mg/m³	0.602
Inhalation, Systemic effects, Acute	20 mg/m³	0.243
Dermal, Systemic effects, Long Term	1.372 mg/kgbw/day	0.116
Combined routes, Systemic effects, Long Term		0.719
Contributing scenario controlling worker exposure: Use as laboratory reagent (PROC 15)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	0.5 mg/m³	0.06
Inhalation, Systemic effects, Acute	2 mg/m³	0.024
Dermal, Systemic effects, Long Term	0.34 mg/kgbw/day	0.029
Combined routes, Systemic effects, Long Term		0.089
Contributing scenario controlling worker exposure: Hand-mixing with intimate contact and only PPE available (PROC 19)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	3 mg/m³	0.361
Inhalation, Systemic effects, Acute	20 mg/m³	0.243
Dermal, Systemic effects, Long Term	7.072 mg/kgbw/day	0.599
Combined routes, Systemic effects, Long Term		0.961
Contributing scenario controlling worker exposure: Manual maintenance (cleaning and repair) of machinery (PROC 28)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	5 mg/m³	0.602
Inhalation, Systemic effects, Acute	20 mg/m³	0.243
Dermal, Systemic effects, Long Term	2.742 mg/kgbw/day	0.232
Combined routes, Systemic effects, Long Term		0.835
SECTION 4:	5.14 Guidance to DU to evaluate whether he works inside the boundaries set by the ES	
<u>Remarks on exposure data from external estimation tools:</u> ECETOC TRA Workers 3.1:		

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Explanation: The exposure estimates for PROC 8a are used, as TRA Workers cannot predict exposure for PROC 28 and these estimates can be considered suitable for estimating exposures during manual maintenance.

6. Exposure Scenario 6: Use at industrial sites - Use as additive in intumescent coatings

SECTION 1:		Title of exposure scenario
		Use at industrial sites - Use as additive in intumescent coatings
Contributing scenario controlling environmental exposure		
CS1	Use as additive in intumescent coatings	ERC5
Contributing scenario controlling worker exposure		
CS2	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions	PROC3
CS3	Chemical production where opportunity for exposure arises	PROC4
CS4	Mixing or blending in batch processes	PROC5
CS5	Industrial spraying with Local Exhaust Ventilation (LEV)	PROC7
CS6	Industrial spraying without Local Exhaust Ventilation (LEV)	PROC7
CS7	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities	PROC8a
CS8	Transfer of substance or mixture (charging and discharging) at dedicated facilities	PROC8b
CS9	Transfer of substance or mixture into small containers (dedicated filling line, including weighing)	PROC9
CS10	Roller application or brushing	PROC10
CS11	Treatment of articles by dipping and pouring	PROC13
CS12	Use as laboratory reagent	PROC15
CS13	Hand-mixing with intimate contact and only PPE available	PROC19
CS14	Manual maintenance (cleaning and repair) of machinery	PROC28
Subsequent service life exposure scenario(s):		
ES9	Service life (worker at industrial site) - Intumescent coatings - Workers (industrial)	
ES10	Service life (professional worker) - Intumescent coatings - Professional Workers	
ES12	Service life (consumers) - Intumescent coating – Consumers	
SECTION 2:		Conditions of use
2.1		Contributing scenario controlling environmental exposure: 6.1 Use as additive in intumescent coatings (ERC 5)
Amount used, frequency and duration of use (or from service life)		
Daily use amount at site: not relevant for the assessment as scenario specific releases are estimated Annual use amount at site: not relevant for the assessment as scenario specific releases are estimated		
Conditions and measures related to biological sewage treatment plant		
Biological STP: Standard [Effectiveness, Water: 0.169%] Discharge rate of STP: >= 2E3 m3/day Application of the STP sludge on agricultural soil: Yes		
Other given operational conditions affecting environmental exposure		
Receiving surface water flow: >= 1.8E4 m3/day		
2.2		Contributing scenario controlling worker exposure: 6.2 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions (PROC 3)
Product characteristics		
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)		
Frequency and duration of use		
Duration of activity: <= 8 h/day		

Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: No [Effectiveness, Dermal: 0%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.3	Contributing scenario controlling worker exposure: 6.3 Chemical production where opportunity for exposure arises (PROC 4)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes(Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.4	Contributing scenario controlling worker exposure: 6.4 Mixing or blending in batch processes (PROC 5)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes(Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.5	Contributing scenario controlling worker exposure: 6.5 Industrial spraying with Local Exhaust Ventilation (LEV) (PROC 7)
Product characteristics	

Percentage (w/w) of substance in mixture/article: <= 30 % Physical form of the used product: Liquid	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
Ventilation working room: General ventilation (mechanical) Occupational Health and Safety Management System: Advanced Local exhaust ventilation: Yes (TRA Effectiveness) [Effectiveness, Inhalation: 95%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes(Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.6	Contributing scenario controlling worker exposure: 6.6 Industrial spraying without Local Exhaust Ventilation (LEV) (PROC 7)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 30 % Physical form of the used product: Liquid	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
Ventilation working room: General ventilation (mechanical) Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: Yes (Respirator with APF of 10) [Effectiveness, Inhalation: 90%] Dermal protection: Yes(Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.7	Contributing scenario controlling worker exposure: 6.7 Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC 8a)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes(Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]	
Other given operational conditions affecting workers exposure	

Place of use: Indoor Operating temperature: <= 40 °C	
2.8	Contributing scenario controlling worker exposure: 6.8 Transfer of substance or mixture (charging and discharging) at dedicated facilities (PROC 8b)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.9	Contributing scenario controlling worker exposure: 6.9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC 9)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.10	Contributing scenario controlling worker exposure: 6.10 Roller application or brushing (PROC 10)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 30 % Physical form of the used product: Liquid	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
Ventilation working room: General ventilation (mechanical) Occupational Health and Safety Management System: Advanced	

Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.11	Contributing scenario controlling worker exposure: 6.11 Treatment of articles by dipping and pouring (PROC 13)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 30 % Physical form of the used product: Liquid	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.12	Contributing scenario controlling worker exposure: 6.12 Use as laboratory reagent (PROC 15)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: No [Effectiveness, Dermal: 0%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.13	Contributing scenario controlling worker exposure: 6.13 Hand-mixing with intimate contact and only PPE available (PROC 19)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 30 % Physical form of the used product: Liquid	
Frequency and duration of use	

Duration of activity: <= 8 h/day		
Technical conditions and measures to control dispersion from source towards the worker		
Ventilation working room: General ventilation (mechanical) Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]		
Conditions and measures related to personal protection, hygiene and health evaluation		
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes(Chemically resistant gloves conforming to EN374 with specific activity training) and (other) appropriate dermal protection [Effectiveness, Dermal: 95%]		
Other given operational conditions affecting workers exposure		
Place of use: Indoor Operating temperature: <= 40 °C		
2.14	Contributing scenario controlling worker exposure: 6.14 Manual maintenance (cleaning and repair) of machinery (PROC 28)	
Product characteristics		
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)		
Frequency and duration of use		
Duration of activity: <= 8 h/day		
Technical conditions and measures to control dispersion from source towards the worker		
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]		
Conditions and measures related to personal protection, hygiene and health evaluation		
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes(Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]		
Other given operational conditions affecting workers exposure		
Place of use: Indoor Operating temperature: <= 40 °C		
SECTION 3:		6.15 Exposure estimation
3.1. Environment		
Release	Release estimation method	Explanations
Water	Estimated release rate	Local release rate: 3 kg/day
Air	Estimated release rate	Local release rate: 0.5 kg/day
Non-Agricultural Soil	Estimated release factor	Release factor after on-site RMM: 0%
Protection target	Exposure concentration	Risk quantification (RCR)
Fresh water	Local PEC: 0.155 mg/l	0.3
Sedimentation (Fresh water)	Local PEC: 0.766 mg/kg dw	0.3
Marine water	Local PEC: 0.0155 mg/l	0.3
Sedimentation (Marine water)	Local PEC: 0.077 mg/kg dw	0.3
Sewage Treatment Plant	Local PEC: 1.497 mg/l	< 0.01
Agricultural soil	Local PEC: 0.017 mg/kg dw	0.08
Man via Environment - Inhalation (Systemic effects)	Concentration in air: 3.97E-5 mg/m ³	< 0.01
Man via Environment - Oral	Exposure via food consumption: 9.7E-3 mg/kgbw/day	0.02
Man via Environment – Combined routes		0.02

3.2. Worker		
Contributing scenario controlling worker exposure: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment conditions (PROC 3)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	1 mg/m ³	0.12
Inhalation, Systemic effects, Acute	4 mg/m ³	0.049
Dermal, Systemic effects, Long Term	0.69 mg/kgbw/day	0.058
Combined routes, Systemic effects, Long Term		0.179
Contributing scenario controlling worker exposure: Chemical production where opportunity for exposure arises (PROC 4)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	5 mg/m ³	0.602
Inhalation, Systemic effects, Acute	20 mg/m ³	0.243
Dermal, Systemic effects, Long Term	1.372 mg/kgbw/day	0.116
Combined routes, Systemic effects, Long Term		0.719
Contributing scenario controlling worker exposure: Mixing or blending in batch processes (PROC 5)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	5 mg/m ³	0.602
Inhalation, Systemic effects, Acute	20 mg/m ³	0.243
Dermal, Systemic effects, Long Term	2.742 mg/kgbw/day	0.232
Combined routes, Systemic effects, Long Term		0.835
Contributing scenario controlling worker exposure: Industrial spraying with Local Exhaust Ventilation (LEV) (PROC 7)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	0.4 mg/m ³	0.048
Inhalation, Systemic effects, Acute	0.4 mg/m ³	< 0.01
Dermal, Systemic effects, Long Term	8.572 mg/kgbw/day	0.726
Combined routes, Systemic effects, Long Term		0.775
Contributing scenario controlling worker exposure: Industrial spraying without Local Exhaust Ventilation (LEV) (PROC 7)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	0.795 mg/m ³	0.096
Inhalation, Systemic effects, Acute	0.795 mg/m ³	< 0.01
Dermal, Systemic effects, Long Term	8.572 mg/kgbw/day	0.726
Combined routes, Systemic effects, Long Term		0.822
Contributing scenario controlling worker exposure: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC 8a)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	5 mg/m ³	0.602
Inhalation, Systemic effects, Acute	20 mg/m ³	0.243
Dermal, Systemic effects, Long Term	2.742 mg/kgbw/day	0.232
Combined routes, Systemic effects, Long Term		0.835
Contributing scenario controlling worker exposure: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC 8b)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)

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Inhalation, Systemic effects, Long Term	1 mg/m ³	0.12
Inhalation, Systemic effects, Acute	4 mg/m ³	0.049
Dermal, Systemic effects, Long Term	2.742 mg/kgbw/day	0.232
Combined routes, Systemic effects, Long Term		0.353
Contributing scenario controlling worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC 9)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	5 mg/m ³	0.602
Inhalation, Systemic effects, Acute	20 mg/m ³	0.243
Dermal, Systemic effects, Long Term	1.372 mg/kgbw/day	0.116
Combined routes, Systemic effects, Long Term		0.719
Contributing scenario controlling worker exposure: Roller application or brushing (PROC 10)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	3.59 mg/m ³	0.433
Inhalation, Systemic effects, Acute	3.59 mg/m ³	0.044
Dermal, Systemic effects, Long Term	5.486 mg/kgbw/day	0.465
Combined routes, Systemic effects, Long Term		0.897
Contributing scenario controlling worker exposure: Treatment of articles by dipping and pouring (PROC 13)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	0.525 mg/m ³	0.063
Inhalation, Systemic effects, Acute	0.525 mg/m ³	< 0.01
Dermal, Systemic effects, Long Term	2.743 mg/kgbw/day	0.232
Combined routes, Systemic effects, Long Term		0.296
Contributing scenario controlling worker exposure: Use as laboratory reagent (PROC 15)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	0.5 mg/m ³	0.06
Inhalation, Systemic effects, Acute	2 mg/m ³	0.024
Dermal, Systemic effects, Long Term	0.34 mg/kgbw/day	0.029
Combined routes, Systemic effects, Long Term		0.089
Contributing scenario controlling worker exposure: Hand-mixing with intimate contact and only PPE available (PROC 19)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	1.74 mg/m ³	0.21
Inhalation, Systemic effects, Acute	1.74 mg/m ³	0.021
Dermal, Systemic effects, Long Term	7.072 mg/kgbw/day	0.599
Combined routes, Systemic effects, Long Term		0.809
Contributing scenario controlling worker exposure: Manual maintenance (cleaning and repair) of machinery (PROC 28)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	5 mg/m ³	0.602
Inhalation, Systemic effects, Acute	20 mg/m ³	0.243
Dermal, Systemic effects, Long Term	2.742 mg/kgbw/day	0.232
Combined routes, Systemic effects, Long Term		0.835
SECTION 4:	6.16 Guidance to DU to evaluate whether he works inside the boundaries set by the ES	

Remarks on exposure data from external estimation tools:

Stoffenmanager 8:

Explanation: Inhalation exposure concentration estimated using Stoffenmanager® (version 8)

- Activity/type of task: Handling of liquids at high pressure resulting in substantial generation of mist or spray/haze
- Distance to task: In the breathing zone of the worker (distance head-product < 1 m) (worst-case assumption)
- Local controls: No control measures at the source (refinement due to LEV done outside Stoffenmanager®, see below)
- Ventilation working room: General ventilation (mechanical)
- Volume of the working room: 100-1000 m³
- Regular cleaning of work area (daily): Yes
- Regular inspection and maintenance (at least monthly): Yes
- Presence of secondary emission sources (worst-case assumptions);

Other workers using the same substance simultaneously: Yes

A period of evaporation, drying or curing after the activity (with prolonged emission of vapours): Yes

The concentration during the task due to the activity undertaken is estimated to be 7.95 mg/m³, resulting in an exposure concentration of 0.4 mg/m³ due to the use of LEV with an effectiveness of 95% (TRA effectiveness). As the task is performed for 8 hours, the daily average concentration equals the task concentration. In accordance with the ECHA Guidance (Chapter R.14), this estimated concentration is therefore considered to be the short-term as well as the long-term inhalation exposure estimate (90th percentiles).

Stoffenmanager 8:

Explanation: Inhalation exposure concentration estimated using Stoffenmanager® (version 8)

- Activity/type of task: Handling of liquids at high pressure resulting in substantial generation of mist or spray/haze
- Distance to task: In the breathing zone of the worker (distance head-product < 1 m) (worst-case assumption)
- Local controls: No control measures at the source
- Ventilation working room: General ventilation (mechanical)
- Volume of the working room: 100-1000 m³
- Regular cleaning of work area (daily): Yes
- Regular inspection and maintenance (at least monthly): Yes
- Presence of secondary emission sources (worst-case assumptions);

Other workers using the same substance simultaneously: Yes

A period of evaporation, drying or curing after the activity (with prolonged emission of vapours): Yes

The concentration during the task due to the activity undertaken is estimated to be 7.95 mg/m³, resulting in an exposure concentration of 0.795 mg/m³ due to the use of respiratory protection with an effectiveness of 90%. As the task is performed for 8 hours, the daily average concentration equals the task concentration. In accordance with the ECHA Guidance (Chapter R.14), this estimated concentration is therefore considered to be the short-term as well as the long-term inhalation exposure estimate (90th percentiles).

Stoffenmanager 8:

Explanation: Inhalation exposure concentration estimated using Stoffenmanager® (version 8)

- Activity/type of task: Handling of liquids on large surfaces or large work pieces
- Distance to task: In the breathing zone of the worker (distance head-product < 1 m) (worst-case assumption)
- Local controls: No control measures at the source
- Ventilation working room: General ventilation (mechanical)
- Volume of the working room: 100-1000 m³
- Regular cleaning of work area (daily): Yes
- Regular inspection and maintenance (at least monthly): Yes
- Presence of secondary emission sources (worst-case assumptions);

Other workers using the same substance simultaneously: Yes

A period of evaporation, drying or curing after the activity (with prolonged emission of vapours): Yes

The concentration that can be inhaled by the worker during the task due to the activity undertaken is obtained. As the task is performed for 8 hours, the daily average concentration equals the task concentration. In accordance with the ECHA Guidance (Chapter R.14), this estimated concentration is therefore considered to be the short-term as well as the long-term inhalation exposure estimate (90th percentiles).

ECETOC TRA Workers 3.1:

Explanation: As solid is used as value for CSA, while liquid is used, it is considered appropriate to refine the exposure estimates, using the standalone version of TRA Workers (v3.1). The vapour pressure at operating temperature (40°C) used for the calculation is 3.71E-8 Pa (as calculated by Chesar).

Stoffenmanager 8:

Explanation: Inhalation exposure concentration estimated using Stoffenmanager® (version 8)

- Activity/type of task: Handling of liquids using low pressure, low speed or on medium-sized surfaces
- Distance to task: In the breathing zone of the worker (distance head-product < 1 m) (worst-case assumption)
- Local controls: No control measures at the source

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<p>- Ventilation working room: General ventilation (mechanical)</p> <p>- Volume of the working room: 100-1000 m³</p> <p>- Regular cleaning of work area (daily): Yes</p> <p>- Regular inspection and maintenance (at least monthly): Yes</p> <p>- Presence of secondary emission sources (worst-case assumptions);</p> <p>Other workers using the same substance simultaneously: Yes</p> <p>A period of evaporation, drying or curing after the activity (with prolonged emission of vapours): Yes</p> <p>The concentration that can be inhaled by the worker during the task due to the activity undertaken is obtained. As the task is performed for 8 hours, the daily average concentration equals the task concentration. In accordance with the ECHA Guidance (Chapter R.14), this estimated concentration is therefore considered to be the short-term as well as the long-term inhalation exposure estimate (90th percentiles).</p> <p>ECETOC TRA Workers 3.1:</p> <p>Explanation: The exposure estimates for PROC 8a are used, as TRA Workers cannot predict exposure for PROC 28 and these estimates can be considered suitable for estimating exposures during manual maintenance.</p>
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7. Exposure Scenario 7: Widespread use by professional workers - Use as additive in intumescent coatings

SECTION 1:		Title of exposure scenario
		Widespread use by professional workers - Use as additive in intumescent coatings
Contributing scenario controlling environmental exposure		
CS1	Use as additive in intumescent coatings	ERC5
Contributing scenario controlling worker exposure		
CS2	Mixing or blending in batch processes	PROC5
CS3	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities	PROC8a
CS4	Transfer of substance or mixture (charging and discharging) at dedicated facilities	PROC8b
CS5	Transfer of substance or mixture into small containers (dedicated filling line, including weighing)	PROC9
CS6	Roller application or brushing	PROC10
	Non industrial spraying	PROC11
CS7	Treatment of articles by dipping and pouring	PROC13
CS8	Hand-mixing with intimate contact and only PPE available	PROC19
CS9	Manual maintenance (cleaning and repair) of machinery	PROC28
Subsequent service life exposure scenario(s):		
ES10	Service life (professional worker) - Intumescent coatings - Professional Workers	
ES12	Service life (consumers) - Intumescent coating – Consumers	
SECTION 2:		Conditions of use
2.1	Contributing scenario controlling environmental exposure: 7.1 Use as additive in intumescent coatings (ERC 8c, ERC 8f)	
Amount used, frequency and duration of use (or from service life)		
Daily local widespread use amount: not relevant for the assessment as scenario specific releases are estimated		
Conditions and measures related to biological sewage treatment plant		
Biological STP: Standard [Effectiveness, Water: 0.169%] Discharge rate of STP: $\geq 2E3$ m ³ /day Application of the STP sludge on agricultural soil: Yes		
Other given operational conditions affecting environmental exposure		
Receiving surface water flow: $\geq 1.8E4$ m ³ /day		
2.2	Contributing scenario controlling worker exposure: 7.2 Mixing or blending in batch processes (PROC 5)	
Product characteristics		
Percentage (w/w) of substance in mixture/article: ≤ 100 % Physical form of the used product: Solid (medium dusty form)		
Frequency and duration of use		
Duration of activity: ≤ 8 h/day		
Technical conditions and measures to control dispersion from source towards the worker		
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Basic Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]		
Conditions and measures related to personal protection, hygiene and health evaluation		
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]		
Other given operational conditions affecting workers exposure		

Place of use: Indoor Operating temperature: <= 40 °C	
2.3	Contributing scenario controlling worker exposure: 7.3 Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC 8a)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 30 % Physical form of the used product: Liquid	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Basic Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes(Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.4	Contributing scenario controlling worker exposure: 7.4 Transfer of substance or mixture (charging and discharging) at dedicated facilities (PROC 8b)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Basic Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes(Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: <= 40 °C	
2.5	Contributing scenario controlling worker exposure: 7.5 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC 9)
Product characteristics	
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)	
Frequency and duration of use	
Duration of activity: <= 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%]	

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Occupational Health and Safety Management System: Basic Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: ≤ 40 °C	
2.6	Contributing scenario controlling worker exposure: 7.6 Roller application or brushing (PROC 10)
Product characteristics	
Percentage (w/w) of substance in mixture/article: ≤ 30 % Physical form of the used product: Liquid	
Frequency and duration of use	
Duration of activity: ≤ 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
Ventilation working room: General ventilation (mechanical) Occupational Health and Safety Management System: Basic Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes (Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: ≤ 40 °C	
2.7	Contributing scenario controlling worker exposure: 7.7 Non industrial spraying (PROC 11)
Product characteristics	
Percentage (w/w) of substance in mixture/article: ≤ 30 % Physical form of the used product: Liquid	
Frequency and duration of use	
Duration of activity: ≤ 8 h/day	
Technical conditions and measures to control dispersion from source towards the worker	
Ventilation working room: General ventilation (mechanical) Occupational Health and Safety Management System: Basic Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]	
Conditions and measures related to personal protection, hygiene and health evaluation	
Respiratory protection: Yes (Respirator with APF of 20) [Effectiveness, Inhalation: 95%] Dermal protection: Yes (Chemically resistant gloves conforming to EN374 with basic employee training) and (other) appropriate dermal protection [Effectiveness, Dermal: 90%]	
Other given operational conditions affecting workers exposure	
Place of use: Indoor Operating temperature: ≤ 40 °C	
2.8	Contributing scenario controlling worker exposure: 7.8 Treatment of articles by dipping and pouring (PROC 13)
Product characteristics	
Percentage (w/w) of substance in mixture/article: ≤ 30 % Physical form of the used product: Liquid	

Frequency and duration of use		
Duration of activity: <= 8 h/day		
Technical conditions and measures to control dispersion from source towards the worker		
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Basic Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]		
Conditions and measures related to personal protection, hygiene and health evaluation		
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes(Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]		
Other given operational conditions affecting workers exposure		
Place of use: Indoor Operating temperature: <= 40 °C		
2.9	Contributing scenario controlling worker exposure: 7.9 Manual maintenance (cleaning and repair) of machinery (PROC 28)	
Product characteristics		
Percentage (w/w) of substance in mixture/article: <= 30 % Physical form of the used product: Liquid		
Frequency and duration of use		
Duration of activity: <= 8 h/day		
Technical conditions and measures to control dispersion from source towards the worker		
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Basic Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]		
Conditions and measures related to personal protection, hygiene and health evaluation		
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: Yes(Chemically resistant gloves conforming to EN374) and (other) appropriate dermal protection [Effectiveness, Dermal: 80%]		
Other given operational conditions affecting workers exposure		
Place of use: Indoor Operating temperature: <= 40 °C		
SECTION 3:		7.10 Exposure estimation
3.1. Environment		
Release	Release estimation method	Explanations
Water	Estimated release rate	Local release rate: 0 kg/day
Air	Estimated release rate	Local release rate: 0 kg/day
Non-Agricultural Soil	Estimated release factor	Release factor after on-site RMM: 0%
Protection target		Exposure concentration
Fresh water		Local PEC: 5.0E-3 mg/l
Sedimentation (Fresh water)		Local PEC: 0.025 mg/kg dw
Marine water		Local PEC: 5.0E-4 mg/l
Sedimentation (Marine water)		Local PEC: 2.4E-3 mg/kg dw
Sewage Treatment Plant		Local PEC: 0 mg/l
Agricultural soil		Local PEC: 2.52E-12 mg/kg dw
Man via Environment - Inhalation (Systemic effects)		Concentration in air: 1.62E-21 mg/m³
Man via Environment - Oral		Exposure via food consumption: 1.74E-4 mg/kgbw/day

Man via Environment – Combined routes		< 0.01
3.2. Worker		
Contributing scenario controlling worker exposure: Mixing or blending in batch processes (PROC 5)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	5 mg/m ³	0.602
Inhalation, Systemic effects, Acute	20 mg/m ³	0.243
Dermal, Systemic effects, Long Term	2.742 mg/kgbw/day	0.232
Combined routes, Systemic effects, Long Term		0.835
Contributing scenario controlling worker exposure: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC 8a)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	0.525 mg/m ³	0.063
Inhalation, Systemic effects, Acute	0.525 mg/m ³	< 0.01
Dermal, Systemic effects, Long Term	2.743 mg/kgbw/day	0.232
Combined routes, Systemic effects, Long Term		0.296
Contributing scenario controlling worker exposure: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC 8b)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	5 mg/m ³	0.602
Inhalation, Systemic effects, Acute	20 mg/m ³	0.243
Dermal, Systemic effects, Long Term	2.742 mg/kgbw/day	0.232
Combined routes, Systemic effects, Long Term		0.835
Contributing scenario controlling worker exposure: Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC 9)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	5 mg/m ³	0.602
Inhalation, Systemic effects, Acute	20 mg/m ³	0.243
Dermal, Systemic effects, Long Term	1.372 mg/kgbw/day	0.116
Combined routes, Systemic effects, Long Term		0.719
Contributing scenario controlling worker exposure: Roller application or brushing (PROC 10)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	3.61 mg/m ³	0.435
Inhalation, Systemic effects, Acute	3.61 mg/m ³	0.044
Dermal, Systemic effects, Long Term	5.486 mg/kgbw/day	0.465
Combined routes, Systemic effects, Long Term		0.9
Contributing scenario controlling worker exposure: Non industrial spraying (PROC 11)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	0.398 mg/m ³	0.048
Inhalation, Systemic effects, Acute	0.398 mg/m ³	< 0.01
Dermal, Systemic effects, Long Term	10.71 mg/kgbw/day	0.908
Combined routes, Systemic effects, Long Term		0.956
Contributing scenario controlling worker exposure: Treatment of articles by dipping and pouring (PROC 13)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	0.525 mg/m ³	0.063

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Inhalation, Systemic effects, Acute		0.525 mg/m³	< 0.01
Dermal, Systemic effects, Long Term		2.743 mg/kgbw/day	0.232
Combined routes, Systemic effects, Long Term			0.296
Contributing scenario controlling worker exposure: Manual maintenance (cleaning and repair) of machinery (PROC 28)			
Exposure route		Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term		0.525 mg/m³	0.063
Inhalation, Systemic effects, Acute		0.525 mg/m³	< 0.01
Dermal, Systemic effects, Long Term		2.743 mg/kgbw/day	0.232
Combined routes, Systemic effects, Long Term			0.296
SECTION 4:	7.11 Guidance to DU to evaluate whether he works inside the boundaries set by the ES		
<u>Remarks on exposure data from external estimation tools:</u> ECETOC TRA Workers 3.1: Explanation: As solid is used as value for CSA, while liquid is used, it is considered appropriate to refine the exposure estimates, using the standalone version of TRA Workers (v3.1).The vapour pressure at operating temperature (40°C) used for the calculation is 3.71E-8 Pa (as calculated by Chesar).			
Stoffenmanager 8: Explanation: Inhalation exposure concentration estimated using Stoffenmanager® (version 8) - Activity/type of task: Handling of liquids on large surfaces or large work pieces - Distance to task: In the breathing zone of the worker (distance head-product < 1 m) (worst-case assumption) - Local controls: No control measures at the source - Ventilation working room: General ventilation (mechanical) - Volume of the working room: 100-1000 m3 - Regular cleaning of work area (daily): No - Regular inspection and maintenance (at least monthly): No - Presence of secondary emission sources (worst-case assumptions); Other workers using the same substance simultaneously: Yes A period of evaporation, drying or curing after the activity (with prolonged emission of vapours): Yes The concentration that can be inhaled by the worker during the task due to the activity undertaken is obtained.As the task is performed for 8 hours, the daily average concentration equals the task concentration.In accordance with the ECHA Guidance (Chapter R.14), this estimated concentration is therefore considered to be the short-term as well as the long-term inhalation exposure estimate (90th percentiles).			
Stoffenmanager 8: Explanation: Inhalation exposure concentration estimated using Stoffenmanager® (version 8) - Activity/type of task: Handling of liquids at high pressure resulting in substantial generation of mist or spray/haze - Distance to task: In the breathing zone of the worker (distance head-product < 1 m) (worst-case assumption) - Local controls: No control measures at the source - Ventilation working room: General ventilation (mechanical) - Volume of the working room: 100-1000 m3 - Regular cleaning of work area (daily): No - Regular inspection and maintenance (at least monthly): No - Presence of secondary emission sources (worst-case assumptions); Other workers using the same substance simultaneously: Yes A period of evaporation, drying or curing after the activity (with prolonged emission of vapours): Yes The concentration during the task due to the activity undertaken is estimated to be 7.96 mg/m3, resulting in an exposure concentration of 0.398 mg/m3 due to the use of respiratory protection.As the task is performed for 8 hours, the daily average concentration equals the task concentration.In accordance with the ECHA Guidance (Chapter R.14), this estimated concentration is therefore considered to be the short-term as well as the long-term inhalation exposure estimate (90th percentiles).			
ECETOC TRA Workers 3.1: Explanation: The exposure estimates for PROC 8a are used, as TRA Workers cannot predict exposure for PROC 28 and these estimates can be considered suitable for estimating exposures during manual maintenance.The exposure estimates are calculated for using a liquid, with the standalone version of TRA Workers (v3.1).The vapour pressure at operating temperature (40°C) used for the calculation is 3.71E-8 Pa (as calculated by Chesar).			

8. Exposure Scenario 8: Service life (worker at industrial site) - PU foams - Workers (industrial)

SECTION 1:		Title of exposure scenario
		Service life (worker at industrial site) - PU foams - Workers (industrial)
Contributing scenario controlling environmental exposure		
CS1	PU foams - Workers (industrial)	ERC12a
Contributing scenario controlling worker exposure		
CS2	Low energy manipulation of substances bound in materials and/or articles	PROC21
CS3	High (mechanical) energy work-up of substances bound in materials and/or articles	PROC24
Exposure scenario(s) of the uses leading to the inclusion of the substance into the article(s):		
ES5	Use at industrial sites - Use as additive in foams	
SECTION 2:		Conditions of use
2.1	Contributing scenario controlling environmental exposure: 8.1 PU foams - Workers (industrial) (ERC 12a)	
Amount used, frequency and duration of use (or from service life)		
Daily use amount at site: not relevant for the assessment as scenario specific releases are estimated		
Annual use amount at site: not relevant for the assessment as scenario specific releases are estimated		
Conditions and measures related to biological sewage treatment plant		
Biological STP: Standard [Effectiveness, Water: 0.169%] Discharge rate of STP: >= 2E3 m3/day Application of the STP sludge on agricultural soil: Yes		
Other given operational conditions affecting environmental exposure		
Receiving surface water flow: >= 1.8E4 m3/day		
2.2	Contributing scenario controlling worker exposure: 8.2 Low energy manipulation of substances bound in materials and/or articles (PROC 21)	
Product characteristics		
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)		
Frequency and duration of use		
Duration of activity: <= 8 h/day		
Technical conditions and measures to control dispersion from source towards the worker		
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]		
Conditions and measures related to personal protection, hygiene and health evaluation		
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: No [Effectiveness, Dermal: 0%]		
Other given operational conditions affecting workers exposure		
Place of use: Indoor Operating temperature: <= 40 °C		
2.3	Contributing scenario controlling worker exposure: 8.3 High (mechanical) energy work-up of substances bound in materials and/or articles (PROC 24)	
Product characteristics		
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)		
Frequency and duration of use		
Duration of activity: <= 8 h/day		

Technical conditions and measures to control dispersion from source towards the worker		
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]		
Conditions and measures related to personal protection, hygiene and health evaluation		
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: No [Effectiveness, Dermal: 0%]		
Other given operational conditions affecting workers exposure		
Place of use: Indoor Operating temperature: <= 40 °C		
SECTION 3:	8.4 Exposure estimation	
3.1. Environment		
Release	Release estimation method	Explanations
Water	Estimated release rate	Local release rate: 0 kg/day
Air	Estimated release rate	Local release rate: 0 kg/day
Non-Agricultural Soil	Estimated release factor	Release factor after on-site RMM: 0%
Protection target	Exposure concentration	Risk quantification (RCR)
Fresh water	Local PEC: 5.0E-3 mg/l	0.01
Sedimentation (Fresh water)	Local PEC: 0.025 mg/kg dw	0.01
Marine water	Local PEC: 5.0E-4 mg/l	0.01
Sedimentation (Marine water)	Local PEC: 2.4E-3 mg/kg dw	0.01
Sewage Treatment Plant	Local PEC: 0 mg/l	< 0.01
Agricultural soil	Local PEC: 2.52E-12 mg/kg dw	< 0.01
Man via Environment - Inhalation (Systemic effects)	Concentration in air: 1.62E-21 mg/m ³	< 0.01
Man via Environment - Oral	Exposure via food consumption: 1.74E-4 mg/kgbw/day	< 0.01
Man via Environment – Combined routes		< 0.01
3.2. Worker		
Contributing scenario controlling worker exposure: Mixing or blending in batch processes (PROC 5)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	3 mg/m ³	0.361
Inhalation, Systemic effects, Acute	12 mg/m ³	0.146
Dermal, Systemic effects, Long Term	2.83 mg/kgbw/day	0.24
Combined routes, Systemic effects, Long Term		0.601
Contributing scenario controlling worker exposure: Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC 8a)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	1 mg/m ³	0.12
Inhalation, Systemic effects, Acute	4 mg/m ³	0.049
Dermal, Systemic effects, Long Term	2.83 mg/kgbw/day	0.24
Combined routes, Systemic effects, Long Term		0.36
SECTION 4:	8.5 Guidance to DU to evaluate whether he works inside the boundaries set by the ES	
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.		

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Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling could be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use, additional RMMs or a site-specific chemical safety assessment is required.

9. Exposure Scenario 9: Service life (worker at industrial site) - Intumescent coatings - Workers (industrial)

SECTION 1:		Title of exposure scenario
		Service life (worker at industrial site) - Intumescent coatings - Workers (industrial)
Contributing scenario controlling environmental exposure		
CS1	Intumescent coatings - Workers (industrial)	ERC12a
Contributing scenario controlling worker exposure		
CS2	Low energy manipulation of substances bound in materials and/or articles	PROC21
CS3	High (mechanical) energy work-up of substances bound in materials and/or articles	PROC24
Exposure scenario(s) of the uses leading to the inclusion of the substance into the article(s):		
ES6	Use at industrial sites - Use as additive in intumescent coatings	
SECTION 2:		Conditions of use
2.1	Contributing scenario controlling environmental exposure: 9.1 Intumescent coatings - Workers (industrial) (ERC 12a)	
Amount used, frequency and duration of use (or from service life)		
Daily use amount at site: not relevant for the assessment as scenario specific releases are estimated		
Annual use amount at site: not relevant for the assessment as scenario specific releases are estimated		
Conditions and measures related to biological sewage treatment plant		
Biological STP: Standard [Effectiveness, Water: 0.169%] Discharge rate of STP: >= 2E3 m3/day Application of the STP sludge on agricultural soil: Yes		
Other given operational conditions affecting environmental exposure		
Receiving surface water flow: >= 1.8E4 m3/day		
2.2	Contributing scenario controlling worker exposure: 9.2 Low energy manipulation of substances bound in materials and/or articles (PROC 21)	
Product characteristics		
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)		
Frequency and duration of use		
Duration of activity: <= 8 h/day		
Technical conditions and measures to control dispersion from source towards the worker		
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]		
Conditions and measures related to personal protection, hygiene and health evaluation		
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: No [Effectiveness, Dermal: 0%]		
Other given operational conditions affecting workers exposure		
Place of use: Indoor Operating temperature: <= 40 °C		
2.3	Contributing scenario controlling worker exposure: 9.3 High (mechanical) energy work-up of substances bound in materials and/or articles (PROC 24)	
Product characteristics		
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)		
Frequency and duration of use		
Duration of activity: <= 8 h/day		

Technical conditions and measures to control dispersion from source towards the worker		
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Advanced Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]		
Conditions and measures related to personal protection, hygiene and health evaluation		
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: No [Effectiveness, Dermal: 0%]		
Other given operational conditions affecting workers exposure		
Place of use: Indoor Operating temperature: <= 40 °C		
SECTION 3:	9.4 Exposure estimation	
3.1. Environment		
Release	Release estimation method	Explanations
Water	Estimated release rate	Local release rate: 0 kg/day
Air	Estimated release rate	Local release rate: 0 kg/day
Non-Agricultural Soil	Estimated release factor	Release factor after on-site RMM: 0%
Protection target	Exposure concentration	Risk quantification (RCR)
Fresh water	Local PEC: 5.0E-3 mg/l	0.01
Sedimentation (Fresh water)	Local PEC: 0.025 mg/kg dw	0.01
Marine water	Local PEC: 5.0E-4 mg/l	0.01
Sedimentation (Marine water)	Local PEC: 2.4E-3 mg/kg dw	0.01
Sewage Treatment Plant	Local PEC: 0 mg/l	< 0.01
Agricultural soil	Local PEC: 2.52E-12 mg/kg dw	< 0.01
Man via Environment - Inhalation (Systemic effects)	Concentration in air: 1.62E-21 mg/m ³	< 0.01
Man via Environment - Oral	Exposure via food consumption: 1.74E-4 mg/kgbw/day	< 0.01
Man via Environment – Combined routes		< 0.01
3.2. Worker		
Contributing scenario controlling worker exposure: Low energy manipulation of substances bound in materials and/or articles (PROC 21)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	3 mg/m ³	0.361
Inhalation, Systemic effects, Acute	12 mg/m ³	0.146
Dermal, Systemic effects, Long Term	2.83 mg/kgbw/day	0.24
Combined routes, Systemic effects, Long Term		0.601
Contributing scenario controlling worker exposure: High (mechanical) energy work-up of substances bound in materials and/or articles (PROC 24)		
Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	1 mg/m ³	0.12
Inhalation, Systemic effects, Acute	4 mg/m ³	0.049
Dermal, Systemic effects, Long Term	2.83 mg/kgbw/day	0.24
Combined routes, Systemic effects, Long Term		0.36
SECTION 4:	9.5 Guidance to DU to evaluate whether he works inside the boundaries set by the ES	
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are		

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managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling could be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use, additional RMMs or a site-specific chemical safety assessment is required.

10. Exposure Scenario 10: Service life (professional worker) - Intumescent coatings - Professional Workers

SECTION 1:		Title of exposure scenario
		Service life (professional worker) - Intumescent coatings - Professional Workers
Contributing scenario controlling environmental exposure		
CS1	Intumescent coatings - Professional Workers	ERC10a, ERC11a
Contributing scenario controlling worker exposure		
CS2	Low energy manipulation of substances bound in materials and/or articles	PROC21
Exposure scenario(s) of the uses leading to the inclusion of the substance into the article(s):		
ES6	Use at industrial sites - Use as additive in intumescent coatings	
ES7	Widespread use by professional workers - Use as additive in intumescent coatings	
SECTION 2:		Conditions of use
2.1		Contributing scenario controlling environmental exposure: 10.1 Intumescent coatings - Professional Workers (ERC 10a, ERC 11a)
Amount used, frequency and duration of use (or from service life)		
Daily local widespread use amount: not relevant for the assessment as scenario specific releases are estimated		
Conditions and measures related to biological sewage treatment plant		
Biological STP: Standard [Effectiveness, Water: 0.169%] Discharge rate of STP: >= 2E3 m3/day Application of the STP sludge on agricultural soil: Yes		
Other given operational conditions affecting environmental exposure		
Receiving surface water flow: >= 1.8E4 m3/day		
2.2		Contributing scenario controlling worker exposure: 10.2 Low energy manipulation of substances bound in materials and/or articles (PROC 21)
Product characteristics		
Percentage (w/w) of substance in mixture/article: <= 100 % Physical form of the used product: Solid (medium dusty form)		
Frequency and duration of use		
Duration of activity: <= 8 h/day		
Technical conditions and measures to control dispersion from source towards the worker		
General ventilation: Basic general ventilation (1-3 air changes per hour) [Effectiveness, Inhalation: 0%] Occupational Health and Safety Management System: Basic Local exhaust ventilation: No [Effectiveness, Inhalation: 0%, Dermal: 0%]		
Conditions and measures related to personal protection, hygiene and health evaluation		
Respiratory protection: No [Effectiveness, Inhalation: 0%] Dermal protection: No [Effectiveness, Dermal: 0%]		
Other given operational conditions affecting workers exposure		
Place of use: Indoor Operating temperature: <= 40 °C		
SECTION 3:		10.3 Exposure estimation
3.1. Environment		
Release	Release estimation method	Explanations
Water	Estimated release rate	Local release rate: 0 kg/day
Air	Estimated release rate	Local release rate: 0 kg/day
Non-Agricultural Soil	Estimated release factor	Release factor after on-site RMM: 0%
Protection target		Exposure concentration
Fresh water		Local PEC: 5.0E-3 mg/l
		Risk quantification (RCR)
		0.01

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Sedimentation (Fresh water)	Local PEC: 0.025 mg/kg dw	0.01
Marine water	Local PEC: 5.0E-4 mg/l	0.01
Sedimentation (Marine water)	Local PEC: 2.4E-3 mg/kg dw	0.01
Sewage Treatment Plant	Local PEC: 0 mg/l	< 0.01
Agricultural soil	Local PEC: 2.52E-12 mg/kg dw	< 0.01
Man via Environment - Inhalation (Systemic effects)	Concentration in air: 1.62E-21 mg/m ³	< 0.01
Man via Environment - Oral	Exposure via food consumption: 1.74E-4 mg/kgbw/day	< 0.01
Man via Environment – Combined routes		< 0.01

3.2. Worker

Contributing scenario controlling worker exposure: Low energy manipulation of substances bound in materials and/or articles (PROC 21)

Exposure route	Exposure estimate -Worker	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	5 mg/m ³	0.602
Inhalation, Systemic effects, Acute	20 mg/m ³	0.243
Dermal, Systemic effects, Long Term	2.83 mg/kgbw/day	0.24
Combined routes, Systemic effects, Long Term		0.842

SECTION 4:

10.4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling could be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use, additional RMMs or a site-specific chemical safety assessment is required.

11. Exposure Scenario 11: Service life (consumers) - PU foams – Consumers

SECTION 1:		Title of exposure scenario	
		Service life (consumers) - PU foams – Consumers	
Contributing scenario controlling environmental exposure			
CS1	PU foams – Consumers		ERC10a, ERC11a
Contributing scenario controlling worker exposure			
CS2	Use of articles containing foam with encapsulated the substance		AC1, AC1a, AC 13, AC 13e
Exposure scenario(s) of the uses leading to the inclusion of the substance into the article(s):			
ES5	Use at industrial sites - Use as additive in foams		
SECTION 2:		Conditions of use	
2.1		Contributing scenario controlling environmental exposure: 11.1 PU foams – Consumers (ERC 10a, ERC 11a)	
Amount used, frequency and duration of use (or from service life)			
Daily local widespread use amount: not relevant for the assessment as scenario specific releases are estimated			
Conditions and measures related to biological sewage treatment plant			
Biological STP: Standard [Effectiveness, Water: 0.169%] Discharge rate of STP: >= 2E3 m3/day Application of the STP sludge on agricultural soil: Yes			
Other given operational conditions affecting environmental exposure			
Receiving surface water flow: >= 1.8E4 m3/day			
2.2		Contributing scenario controlling consumer exposure: 11.2 Use of articles containing foam with encapsulated the substance (AC1, AC1a, AC 13, AC13e)	
Product characteristics			
Percentage (w/w) of substance in mixture/article: <= 30 % Exposure via inhalation route: Inhalation exposure is considered to be not relevant Exposure via oral route: Oral exposure is considered to be not relevant			
SECTION 3:		11.3 Exposure estimation	
3.1. Environment			
Release		Release estimation method	Explanations
Water		Estimated release rate	Local release rate: 0 kg/day
Air		Estimated release rate	Local release rate: 0 kg/day
Non-Agricultural Soil		Estimated release factor	Release factor after on-site RMM: 0%
Protection target		Exposure concentration	Risk quantification (RCR)
Fresh water		Local PEC: 5.0E-3 mg/l	0.01
Sedimentation (Fresh water)		Local PEC: 0.025 mg/kg dw	0.01
Marine water		Local PEC: 5.0E-4 mg/l	0.01
Sedimentation (Marine water)		Local PEC: 2.4E-3 mg/kg dw	0.01
Sewage Treatment Plant		Local PEC: 0 mg/l	< 0.01
Agricultural soil		Local PEC: 2.52E-12 mg/kg dw	< 0.01
Man via Environment - Inhalation (Systemic effects)		Concentration in air: 1.62E-21 mg/m³	< 0.01
Man via Environment - Oral		Exposure via food consumption: 1.74E-4 mg/kgbw/day	< 0.01
Man via Environment – Combined routes			< 0.01
3.2. Consumer			

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Contributing scenario controlling consumer exposure:Use of articles containing foam with encapsulated the substance (AC1, AC1a, AC 13, AC13e)		
Exposure route	Exposure estimate -Consumer	Risk quantification (RCR)
Inhalation, Systemic effects, Long Term	Negligible (Migration study)	< 0.01
Dermal, Systemic effects, Long Term	0.1484 mg/kg bw/day: for a baby, when using additional sheets for mattress protection and comfort (Migration study)	0.035
	0.06375 mg/kg bw/day: for an adult, when using additional sheets for mattress protection and comfort (Migration study)	0.015
	0.6375 mg/kg bw/day: for an adult, when sleeping directly on the mattress cover (Migration study)	
	1.484 mg/kg bw/day: for a baby, when sleeping directly on the mattress cover (Migration study)	
Oral, Systemic effects, Long Term	Negligible (Migration study)	< 0.01
Combined routes, Systemic effects, Long Term		0.035 for a baby 0.015 for an adult
SECTION 4:		
11.4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES		
<u>Remarks on exposure data:</u> Migration study: Explanation: The substance is used in foam mattresses, as a non-halogenated flame retardant.The European association of flexible polyurethane foam blocks manufacturers (EUROPUR) commissioned a migration study, to evaluate the potential exposure of humans from melamine used in flexible PU foam used in mattresses.The study was submitted to ECHA by EUROPUR, as part of their response to the public consultation on the CLH report for melamine dated November 2019 and can be found on the ECHA website. Based on the vapour pressure of the substance and since mattresses are flat and not mouthed, inhalation and oral exposure are considered negligible, while potential dermal exposure is deemed the most relevant route of exposure due to the prolonged contact duration, with a large part of the body and the possible effect of sweat as a vehicle. The migration of melamine into synthetic sweat soaked filter papers from these foams was investigated.As a mattress typically consists of a PUR foam core surrounded with a fabric layer, migration was investigated with and without the use of a polyester-polypropylene mattress cover placed between the foam and filter paper.The set-up was compressed to 70% of its depth in order to simulate a person sleeping on the mattress and incubated at 40°C for 2 hours. When the foam was covered, a standard practice for every mattress with flexible PU foam, the migration was below the limit of detection (LOD) and LOD/2 was used as estimate for people sleeping directly on the mattress cover (0.6375 mg/kg bw/day for an adult and 1.484 for a baby).Note that this is a worst-case assessment as usually people don’t sleep directly on the mattress cover but put additional sheets for additional mattress protection and comfort.When refined due to the use of additional sheets for mattress protection and comfort, the dermal exposure estimates were concluded to be 0.06375 for an adult and 0.1484 for a baby.Note that no melamine was detected when the mattress cover was included in the test set-up and that the calculations are therefore done based on the LOD/2.		

12. Exposure Scenario 12: Service life (consumers) - Intumescent coating – Consumers

SECTION 1:		Title of exposure scenario	
		Service life (consumers) - Intumescent coating – Consumers	
Contributing scenario controlling environmental exposure			
CS1	Intumescent coating – Consumers		ERC10a, ERC11a
Contributing scenario controlling worker exposure			
CS2	Use of articles with intumescent coating with encapsulated the substance		AC13
Exposure scenario(s) of the uses leading to the inclusion of the substance into the article(s):			
ES6	Use at industrial sites - Use as additive in intumescent coatings		
ES7	Widespread use by professional workers - Use as additive in intumescent coatings		
SECTION 2:		Conditions of use	
2.1		Contributing scenario controlling environmental exposure: 12.1 Intumescent coating – Consumers (ERC 10a, ERC 11a)	
Amount used, frequency and duration of use (or from service life)			
Daily local widespread use amount: not relevant for the assessment as scenario specific releases are estimated			
Conditions and measures related to biological sewage treatment plant			
Biological STP: Standard [Effectiveness, Water: 0.169%] Discharge rate of STP: >= 2E3 m3/day Application of the STP sludge on agricultural soil: Yes			
Other given operational conditions affecting environmental exposure			
Receiving surface water flow: >= 1.8E4 m3/day			
2.2		Contributing scenario controlling consumer exposure: 12.2 Use of articles with intumescent coating with encapsulated the substance (AC 13)	
Product characteristics			
Percentage (w/w) of substance in mixture/article: <= 30 % Exposure via inhalation route: Inhalation exposure is considered to be not relevant Exposure via dermal route: Dermal exposure assumed to be negligible Exposure via oral route: Oral exposure is considered to be not relevant			
SECTION 3:		12.3 Exposure estimation	
3.1. Environment			
Release		Release estimation method	Explanations
Water		Estimated release rate	Local release rate: 0 kg/day
Air		Estimated release rate	Local release rate: 0 kg/day
Non-Agricultural Soil		Estimated release factor	Release factor after on-site RMM: 0%
Protection target		Exposure concentration	Risk quantification (RCR)
Fresh water		Local PEC: 5.0E-3 mg/l	0.01
Sedimentation (Fresh water)		Local PEC: 0.025 mg/kg dw	0.01
Marine water		Local PEC: 5.0E-4 mg/l	0.01
Sedimentation (Marine water)		Local PEC: 2.4E-3 mg/kg dw	0.01
Sewage Treatment Plant		Local PEC: 0 mg/l	< 0.01
Agricultural soil		Local PEC: 2.52E-12 mg/kg dw	< 0.01
Man via Environment - Inhalation (Systemic effects)		Concentration in air: 1.62E-21 mg/m³	< 0.01
Man via Environment - Oral		Exposure via food consumption: 1.74E-4 mg/kgbw/day	< 0.01
Man via Environment – Combined routes			< 0.01

3.2 Consumer	
Contributing scenario controlling consumer exposure: Use of articles with intumescent coating with encapsulated the substance (AC 13)	
As any (dermal) contact by consumers with these coatings will be incidental and as the substance is embedded in a matrix, inhalation, dermal and oral exposure (and therefore risks) are considered to be negligible.	
SECTION 4:	12.4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES
<p>Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.</p> <p>Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling could be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use, additional RMMs or a site-specific chemical safety assessment is required.</p>	