

Přehled expozičních scénářů v tomto dokumentu:

Císlo ES	Název ES	Jazyková verze	Strana
1	Meziprodukt, pomocná chemikálie	CZ	3
2	Distribuce látky	CZ	10
3	Výroba směsí a přebalování	CZ	17
4	Použití jako palivo - průmysl	EN	25
5	Použití jako palivo - profesionálové	EN	35
6	Použití v čisticích prostředcích - průmysl	EN	45
7	Použití v čisticích prostředcích - profesionálové	EN	56
8	Použití v laboratoři - průmysl	EN	67
9	Použití v laboratoři – profesionálové	EN	70
10	Uprava vod – průmysl	EN	74
11	Použití v těžebním průmyslu	EN	75
12	Použití v čisticích prostředcích – spotřebitelé, bez rozprašování	EN	82
13	Použití v čisticích prostředcích – spotřebitelé, s rozprašováním	EN	85
14a	Vnitřní použití jako palivo – spotřebitelé	EN	89
14b	Vnější použití jako palivo – spotřebitelé	EN	92

Použité zkratky:

AC	kategorie předmětů
BL	bezpečnostní list
bw/d	hmotnost těla/den
CSR	zpráva o chemické bezpečnosti
ČOV	čistička odpadních vod
DNEL	odvozená úroveň, při které nedochází k nepříznivým účinkům
ECHA	Evropská chemická agentura
ERC	kategorie uvolňování do životního prostředí
ES	expoziční scénář
OC	výrobní/provozní podmínky
OOPP	osobní ochranné pracovní prostředky
PBT	perzistentní, bioakumulativní a toxický
PC	kategorie chemických výrobků
PNEC	odhad koncentrace, při níž nedochází k nepříznivým účinkům
PROC	kategorie procesů
RCR	míra charakterizace rizika
RMM	management řízení rizik
SU	oblast použití
vPvB	vysoce perzistentní a vysoce bioakumulativní
ŽP	životní prostředí

Poznámka dodavatele:

Výchozí jazyková verze pro jednotlivé expoziční scénáře je angličtina. Překlad do češtiny expozičního scénáře vhodného pro Vaše použití zajistíme na Vaši žádost. Kontaktní osoba pro zaslání ES: Zuzana Germanová

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Obecné poznámky pro každý expoziční scénář

Lidské zdraví – pracovník

Krátkodobá expozice

V případě, že byla pro odhad expozice použita aplikace ECETOC TRA, pak probíhal výpočet krátkodobé expozice následovně:

Inhalace:

- Aktivitám kratším než 1 hodina byla přiřazena původní hodnota jakožto vrcholová expozice.
- Pro aktivity nepřesahující délku 8 hodin (15 min – 1 hod, 1-4 hod, > 4 hod) byla hodnota krátkodobé expozice vypočtena z údajů pro dlouhodobou expozici tak, že se hodnota dlouhodobé expozice znásobila faktorem vrcholové expozice.
- Pro kategorie procesu (PROC) 1-4, které představují víceméně vysoce obsáhlé systémy, byla hodnota faktoru vrcholové expozice stanovena na 4.
- Pro všechny další kategorie procesu byla hodnota faktoru vrcholové expozice stanovena na 2.

Dermální expozice:

Obecně se předpokládá, že při styku látky s pokožkou se expozice s časem kumuluje, proto byly hodnoty expozice stanovené pro jednu pracovní směnu použity rovněž pro krátkodobý styk. V nástroji Stoffenmanager nebyla při výpočtu expozice zohledněna doba trvání aktivity. Z toho důvodu se pro stanovení krátkodobé i dlouhodobé expozice použily výstupy z hodnocení expozice inhalační cestou.

Lidské zdraví – spotřebitel

Pro odhad expozice použita aplikace ConsExpo.

Krátkodobá expozice

Údaje pro krátkodobou inhalační expozici uvedené v tabulkách níže (“Krátkodobě, systematicky, inhalačně”) se vztahují k “průměrné koncentraci dané události”. Údaje pro krátkodobou dermální expozici (“Krátkodobě, systematicky, dermálně”) odpovídají “vnější dermální dávce”.

Dlouhodobá expozice

Pro dlouhodobou inhalační expozici jsou v tabulkách uvedeny dva údaje. Údaj “Dlouhodobě, systematicky, inhalačně” odpovídá “průměrné denní koncentraci” a byl vypočten aplikací ConsExpo. Údaje pro dlouhodobou dermální expozici (“Dlouhodobě, systematicky, dermálně”) odpovídají “chronické vnější dermální dávce” a byly vypočteny aplikací ConsExpo.

Životní prostředí

Ve zprávě o chemické bezpečnosti, vykonané podle článku 14(3) nařízení REACH a podle odpovídající přílohy I části 3 (posouzení nebezpečnosti pro ŽP) a části 4 (posouzení PBT/vPvB), nebylo stanoveno žádné riziko. Z toho důvodu není zapotřebí provádět odhad expozice v souladu s přílohou I (5.0) nařízení REACH. Všechna určená použití látky jsou proto považována za bezpečná pro životní prostředí.

Expoziční scénář 1

1. Název			
Zkrácený název	Použití jako meziprodukt / Použití jako pomocné chemikálie		
Systematický popis pomocí deskriptorů použití	ERC 1, 4, a 6a; PROC 1,2, 3, 4, 8a, 8b, a 15; SU 3, 8, a 9		
Pokryté procesy a aktivity	Výroba látky nebo její použití jako meziprodukt, pomocné látky ve výrobě nebo extrakční činidlo. Zahrnuje recyklaci/regeneraci, přesun materiálu, skladování, vzorkování, přidružené laboratorní úkony, údržbu a stáčení (včetně obalů/nákladu pro lodní dopravu, železničních/silničních cisteren, IBC kontejnerů).		
Metoda hodnocení expozice	Použitý nástroj: Ecetoc TRA pro pracovníky, verze 2 ¹		
2. Výrobní podmínky a opatření pro řízení rizik			
2.1 Kontrola expozice pracovníků pro PROC 1, 2, 3, a 4			
Frekvence a doba použití			
Doba použití	> 4	Hod/den	
Frekvence použití	≤ 240	Dní v roce	
Charakteristika produktu			
Skupenství látky	kapalné		
Koncentrace látky v produktu	100	%	
Tlak par látky	169.27	hPa	
Použité množství			
			Není relevantní v ECETOC TRA
Lidský faktor neovlivněný řízením rizik			
Dermálně exponované části těla	Dlaň jedné ruky (240 cm ²)		Týká se PROC 1 a 3
	Dlaně obou rukou (480 cm ²)		Týká se PROC 2 a 4
Další výrobní podmínky ovlivňující expozici pracovníků			
Oblast	Průmysl		
Uvnitř/venku	Uvnitř		
Technické podmínky a opatření proti úniku ve fázi výroby (u zdroje)			
Nejsou			
Technické podmínky a opatření kontroly šíření ze zdroje směrem k pracovníkovi			
Nutnost místního odsávání	Ne		Týká se PROC 1
	Ano		Účinnost: 90% Týká se PROC 2, 3 a 4

Organizační opatření pro předcházení/omezení úniku, šíření a expozice			
			Není relevantní v ECETOC TRA
Podmínky osobní ochrany, hygienická a zdravotní opatření			
Nutnost ochrany dýchacích cest	Ne		
2.2 Kontrola expozice pracovníků pro PROC 8a and 8b			
Frekvence a doba použití			
Doba použití	> 4	Hod/den	
Frekvence použití	≤ 240	Dní v roce	
Charakteristika produktu (včetně návrhu balení, jež ovlivňuje expozici)			
Skupenství látky	kapalné		
Koncentrace látky v produktu	100	%	
Tlak par látky	169.27	hPa	
Použité množství			
			Není relevantní v ECETOC TRA
Lidský faktor neovlivněný řízením rizik			
Dermálně exponované části těla	Dlaně obou rukou (480 cm ²)		Týká se PROC 8b
	Obě ruce (960 cm ²)		Týká se PROC 8a
Další výrobní podmínky ovlivňující expozici pracovníků			
Oblast	Průmysl		
Uvnitř/venku	Uvnitř		
Technické podmínky a opatření proti úniku ve fázi výroby (u zdroje)			
Technické podmínky a opatření kontroly šíření ze zdroje směrem k pracovníkovi			
Nutnost místního odsávání	Ano		Účinnost: 90% Týká se PROC 8a
	Ano		Účinnost: 97% Týká se PROC 8b
Organizační opatření pro předcházení/omezení úniku, šíření a expozice			
			Není relevantní v ECETOC TRA
Podmínky osobní ochrany, hygienická a zdravotní opatření			
Nutnost ochrany dýchacích cest	Ne		
2.3 Kontrola expozice pracovníků pro PROC 15			
Frekvence a doba použití			
Doba použití	> 4	Hod/den	

Frekvence použití	≤ 240	Dní v roce	
Charakteristika produktu (včetně návrhu balení, jež ovlivňuje expozici)			
Skupenství látky	kapalné		
Koncentrace látky v produktu	100	%	
Tlak par látky	169.27	hPa	
Použití množství			
			Není relevantní v ECETOC TRA
Lidský faktor neovlivněný řízením rizik			
Dermálně exponované části těla	Dlaň jedné ruky (240cm ²)		
Další výrobní podmínky ovlivňující expozici pracovníků			
Oblast	Průmysl		
Uvnitř/venku	Uvnitř		
Technické podmínky a opatření proti úniku ve fázi výroby (u zdroje)			
Technické podmínky a opatření kontroly šíření ze zdroje směrem k pracovníkovi			
Nutnost místního odsávání	Ano		Účinnost: 90%
Organizační opatření pro předcházení/omezení úniku, šíření a expozice			
			Není relevantní v ECETOC TRA
Podmínky osobní ochrany, hygienická a zdravotní opatření			
Nutnost ochrany dýchacích cest	Ne		

- ¹ LEV: Modifikační úpravy dermální expozice, které jsou součástí ECETOC TRA v2, nebyly brány v potaz
Kombinovaný RCR: Kombinovaný RCR byl vypočten podle doporučení pokynů ECHA "Pokyny ohledně požadavků na informace a pro posouzení chemické bezpečnosti – část E: Charakterizace rizika"

Odhad expozice

Odhad expozice pro pracovníky – PROC 1

Cesta expozice	Koncentrace		Vysvětlivky
	Hodnota	Jednotka	
Dlouhodobě, systematicky, dermálně	0.34	mg/kg bw/d	
Dlouhodobě, systematicky, inhalačně	0.01	mg/m ³	

Krátkodobě, systematicky, dermálně	0.34	mg/kg bw/d	
Krátkodobě, systematicky, inhalačně	0.05	mg/m ³	Viz. obecné poznámky

Odhad expozice pro pracovníky – PROC 2

Cesta expozice	Koncentrace		Vysvětlivky
	Hodnota	Jednotka	
Dlouhodobě, systematicky, dermálně	1.37	mg/kg bw/d	
Dlouhodobě, systematicky, inhalačně	6.67	mg/m ³	
Krátkodobě, systematicky, dermálně	1.37	mg/kg bw/d	
Krátkodobě, systematicky, inhalačně	26.67	mg/m ³	Viz. obecné poznámky

Odhad expozice pro pracovníky – PROC 3

Cesta expozice	Koncentrace		Vysvětlivky
	Hodnota	Jednotka	
Dlouhodobě, systematicky, dermálně	0.34	mg/kg bw/d	
Dlouhodobě, systematicky, inhalačně	13.33	mg/m ³	
Krátkodobě, systematicky, dermálně	0.34	mg/kg bw/d	
Krátkodobě, systematicky, inhalačně	53.33	mg/m ³	Viz. obecné poznámky

Odhad expozice pro pracovníky – PROC 4

Cesta expozice	Koncentrace		Vysvětlivky
	Hodnota	Jednotka	

Dlouhodobě, systematicky, dermálně	6.86	mg/kg bw/d	
Dlouhodobě, systematicky, inhalačně	13.33	mg/m ³	
Krátkodobě, systematicky, dermálně	6.86	mg/kg bw/d	
Krátkodobě, systematicky, inhalačně	53.33	mg/m ³	Viz. obecné poznámky

Odhad expozice pro pracovníky – PROC 8a

Cesta expozice	Koncentrace		Vysvětlivky
	Hodnota	Jednotka	
Dlouhodobě, systematicky, dermálně	13.71	mg/kg bw/d	
Dlouhodobě, systematicky, inhalačně	33.33	mg/m ³	
Krátkodobě, systematicky, dermálně	13.71	mg/kg bw/d	
Krátkodobě, systematicky, inhalačně	66.67	mg/m ³	Viz. obecné poznámky

Odhad expozice pro pracovníky – PROC 8b

Cesta expozice	Koncentrace		Vysvětlivky
	Hodnota	Jednotka	
Dlouhodobě, systematicky, dermálně	6.86	mg/kg bw/d	
Dlouhodobě, systematicky, inhalačně	6.00	mg/m ³	
Krátkodobě, systematicky, dermálně	6.86	mg/kg bw/d	
Krátkodobě, systematicky, inhalačně	12.00	mg/m ³	Viz. obecné poznámky

Odhad expozice pro pracovníky – PROC 15

Cesta expozice	Koncentrace		Vysvětlivky
	Hodnota	Jednotka	
Dlouhodobě, systematicky, dermálně	0.34	mg/kg bw/d	
Dlouhodobě, systematicky, inhalačně	6.67	mg/m ³	
Krátkodobě, systematicky, dermálně	0.34	mg/kg bw/d	
Krátkodobě, systematicky, inhalačně	13.33	mg/m ³	Viz. obecné poznámky

Charakterizace rizika

Pracovníci

RCR pracovník – PROC 1

Expozice	Odhad expozice	DNEL	RCR pro cestu	RCR kombinace
Dlouhodobě, systematicky, dermálně	0.34 mg/kg bw/den	40 mg/kg bw/den	0.008	0.0080
Dlouhodobě, systematicky, inhalačně	0.01 mg/m ³	260 mg/m ³	0.00004	
Krátkodobě, systematicky, dermálně	0.34 mg/kg bw/den	40 mg/kg bw/den	0.008	0.0082
Krátkodobě, systematicky, inhalačně	0.05 mg/m ³	260 mg/m ³	0.0002	

RCR pracovník – PROC 2

Expozice	Odhad expozice	DNEL	RCR pro cestu	RCR kombinace
Dlouhodobě, systematicky, dermálně	1.37 mg/kg bw/den	40 mg/kg bw/den	0.034	0.060
Dlouhodobě, systematicky, inhalačně	6.67 mg/m ³	260 mg/m ³	0.026	
Krátkodobě, systematicky, dermálně	1.37 mg/kg bw/den	40 mg/kg bw/den	0.034	0.137
Krátkodobě, systematicky, inhalačně	26.67 mg/m ³	260 mg/m ³	0.103	

RCR pracovník – PROC 3

Expozice	Odhad expozice	DNEL	RCR pro cestu	RCR kombinace
Dlouhodobě, systematicky, dermálně	0.34 mg/kg bw/den	40 mg/kg bw/den	0.008	0.059
Dlouhodobě, systematicky, inhalačně	13.33 mg/m ³	260 mg/m ³	0.051	
Krátkodobě, systematicky, dermálně	0.34 mg/kg bw/den	40 mg/kg bw/den	0.008	0.213
Krátkodobě, systematicky, inhalačně	53.33 mg/m ³	260 mg/m ³	0.205	

RCR pracovník – PROC 4

Expozice	Odhad expozice	DNEL	RCR pro cestu	RCR kombinace
Dlouhodobě, systematicky, dermálně	6.86 mg/kg bw/den	40 mg/kg bw/den	0.171	0.222
Dlouhodobě, systematicky, inhalačně	13.33 mg/m ³	260 mg/m ³	0.051	
Krátkodobě, systematicky, dermálně	6.86 mg/kg bw/den	40 mg/kg bw/den	0.171	0.376
Krátkodobě, systematicky, inhalačně	53.33 mg/m ³	260 mg/m ³	0.205	

RCR pracovník – PROC 8a

Expozice	Odhad expozice	DNEL	RCR pro cestu	RCR kombinace
Dlouhodobě, systematicky, dermálně	13.71 mg/kg bw/den	40 mg/kg bw/den	0.343	0.471
Dlouhodobě, systematicky, inhalačně	33.33 mg/m ³	260 mg/m ³	0.128	
Krátkodobě, systematicky, dermálně	13.71 mg/kg bw/den	40 mg/kg bw/den	0.343	0.599
Krátkodobě, systematicky, inhalačně	66.67 mg/m ³	260 mg/m ³	0.256	

RCR pracovník – PROC 8b

Expozice	Odhad expozice	DNEL	RCR pro cestu	RCR kombinace
Dlouhodobě, systematicky, dermálně	6.86 mg/kg bw/den	40 mg/kg bw/den	0.171	0.194
Dlouhodobě, systematicky, inhalačně	6.00 mg/m ³	260 mg/m ³	0.023	
Krátkodobě, systematicky, dermálně	6.86 mg/kg bw/den	40 mg/kg bw/den	0.171	0.217
Krátkodobě, systematicky, inhalačně	12.00 mg/m ³	260 mg/m ³	0.046	

RCR pracovník – PROC 15

Expozice	Odhad expozice	DNEL	RCR pro cestu	RCR kombinace
Dlouhodobě, systematicky, dermálně	0.34 mg/kg bw/den	40 mg/kg bw/den	0.009	0.035
Dlouhodobě, systematicky, inhalačně	6.67 mg/m ³	260 mg/m ³	0.026	
Krátkodobě, systematicky, dermálně	0.34 mg/kg bw/den	40 mg/kg bw/den	0.009	0.060
Krátkodobě, systematicky, inhalačně	13.33 mg/m ³	260 mg/m ³	0.051	

Expoziční scénář 2

1. Název			
Zkrácený název	Distribuce látky		
Systematický popis pomocí deskriptorů použití	ERC 1 a 2; PROC 1, 2, 3, 4, 8a, 8b a 9; SU 3, 8, a 9		
Pokryté procesy a aktivity	Stáčení látky (včetně obalů/nákladu pro lodní dopravu, železničních/silničních cisteren a IBC kontejnerů) a přebalování (včetně sudů a menších obalů), jejich distribuce a přidružené laboratorní úkony.		
Metoda hodnocení expozice	Použitý nástroj: Ecetoc TRA pro pracovníky, verze 2 ¹		
2. Výrobní podmínky a opatření pro řízení rizik			
2.1 Kontrola expozice pracovníků pro PROC 1, 2, 3, and 4			
Frekvence a doba použití			
Doba použití	> 4	Hod/den	
Frekvence použití	≤ 240	Dní v roce	
Charakteristika produktu			
Skupenství látky	kapalné		
Koncentrace látky v produktu	100	%	
Tlak par látky	169.27	hPa	
Použité množství			
			Není relevantní v ECETOC TRA
Lidský faktor neovlivněný řízením rizik			
Dermálně exponované části těla	Dlaň jedné ruky (240 cm ²)		Týká se PROC 1 a 3
	Dlaně obou rukou (480 cm ²)		Týká se PROC 2 a 4
Další výrobní podmínky ovlivňující expozici pracovníků			
Oblast	Průmysl		
Uvnitř/venku	Uvnitř		
Technické podmínky a opatření proti úniku ve fázi výroby (u zdroje)			

Nejsou			
Technické podmínky a opatření kontroly šíření ze zdroje směrem k pracovníkovi			
Nutnost místního odsávání	Ne		Týká se PROC 1
	Ano		Účinnost: 90% Týká se PROC 2, 3 a 4
Organizační opatření pro předcházení/omezení úniku, šíření a expozice			
			Není relevantní v ECETOC TRA
Podmínky osobní ochrany, hygienická a zdravotní opatření			
Nutnost ochrany dýchacích cest	Ne		
2.2 Kontrola expozice pracovníků pro PROC 8a, 8b, and 9			
Frekvence a doba použití			
Doba použití	> 4	Hod/den	
Frekvence použití	≤ 240	Dní v roce	
Charakteristika produktu (včetně návrhu balení, jež ovlivňuje expozici)			
Skupenství látky	kapalné		
Koncentrace látky v produktu	100	%	
Tlak par látky	169.27	hPa	
Použité množství			
			Není relevantní v ECETOC TRA
Lidský faktor neovlivněný řízením rizik			
Dermálně exponované části těla	Dlaně obou rukou (480 cm ²)		Týká se PROC 8b a 9
	Obě ruce (960 cm ²)		Týká se PROC 8a
Další výrobní podmínky ovlivňující expozici pracovníků			
Oblast	Průmysl		
Uvnitř/venku	Uvnitř		
Technické podmínky a opatření proti úniku ve fázi výroby (u zdroje)			
Technické podmínky a opatření kontroly šíření ze zdroje směrem k pracovníkovi			
Nutnost místního odsávání	Ano		Účinnost: 90% Týká se PROC 8a a 9
	Ano		Účinnost: 97% Týká se PROC 8b
Organizační opatření pro předcházení/omezení úniku, šíření a expozice			
			Není relevantní v ECETOC TRA
Podmínky osobní ochrany, hygienická a zdravotní opatření			
Nutnost ochrany dýchacích cest	Ne		

Odhad expozice

Odhad expozice pro pracovníky – PROC 1

Cesta expozice	Koncentrace		Vysvětlivky
	Hodnota	Jednotka	
Dlouhodobě, systematicky, dermálně	0.34	mg/kg bw/d	
Dlouhodobě, systematicky, inhalačně	0.01	mg/m ³	
Krátkodobě, systematicky, dermálně	0.34	mg/kg bw/d	
Krátkodobě, systematicky, inhalačně	0.05	mg/m ³	Viz. obecné poznámky

Odhad expozice pro pracovníky – PROC 2

Cesta expozice	Koncentrace		Vysvětlivky
	Hodnota	Jednotka	
Dlouhodobě, systematicky, dermálně	1.37	mg/kg bw/d	
Dlouhodobě, systematicky, inhalačně	6.67	mg/m ³	
Krátkodobě, systematicky, dermálně	1.37	mg/kg bw/d	
Krátkodobě, systematicky, inhalačně	26.67	mg/m ³	Viz. obecné poznámky

Odhad expozice pro pracovníky – PROC 3

Cesta expozice	Koncentrace		Vysvětlivky
	Hodnota	Jednotka	
Dlouhodobě, systematicky, dermálně	0.34	mg/kg bw/d	
Dlouhodobě, systematicky, inhalačně	13.33	mg/m ³	
Krátkodobě, systematicky, dermálně	0.34	mg/kg bw/d	
Krátkodobě, systematicky, inhalačně	53.33	mg/m ³	Viz. obecné poznámky

Odhad expozice pro pracovníky – PROC 4

Cesta expozice	Koncentrace		Vysvětlivky
	Hodnota	Jednotka	
Dlouhodobě, systematicky, dermálně	6.86	mg/kg bw/d	
Dlouhodobě, systematicky, inhalačně	13.33	mg/m ³	
Krátkodobě, systematicky, dermálně	6.86	mg/kg bw/d	
Krátkodobě, systematicky, inhalačně	53.33	mg/m ³	Viz. obecné poznámky

Odhad expozice pro pracovníky – PROC 8a

Cesta expozice	Koncentrace		Vysvětlivky
	Hodnota	Jednotka	
Dlouhodobě, systematicky, dermálně	13.71	mg/kg bw/d	

Dlouhodobě, systematicky, inhalačně	33.33	mg/m ³	
Krátkodobě, systematicky, dermálně	13.71	mg/kg bw/d	

Krátkodobě, systematicky inhalačně	66.67	mg/m ³	Viz. obecné poznámky
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Odhad expozice pro pracovníky – PROC 8b

Cesta expozice	Koncentrace		Vysvětlivky
	Hodnota	Jednotka	
Dlouhodobě, systematicky, dermálně	6.86	mg/kg bw/d	
Dlouhodobě, systematicky, inhalačně	6.00	mg/m ³	
Krátkodobě, systematicky, dermálně	6.86	mg/kg bw/d	
Krátkodobě, systematicky, inhalačně	12.00	mg/m ³	Viz. obecné poznámky

Odhad expozice pro pracovníky – PROC 9

Cesta expozice	Koncentrace		Vysvětlivky
	Hodnota	Jednotka	
Dlouhodobě, systematicky, dermálně	6.86	mg/kg bw/d	
Dlouhodobě, systematicky, inhalačně	26.67	mg/m ³	
Krátkodobě, systematicky, dermálně	6.86	mg/kg bw/d	
Krátkodobě, systematicky, inhalačně	53.34	mg/m ³	Viz. obecné poznámky

Charakterizace rizika

Pracovníci

RCR pracovník – PROC 1

Expozice	Odhad expozice	DNEL	RCR pro cestu	RCR kombinace
Dlouhodobě, systematicky, dermálně	0.34 mg/kg bw/den	40 mg/kg bw/den	0.008	0.0080
Dlouhodobě, systematicky, inhalačně	0.01 mg/m ³	260 mg/m ³	0.00004	
Krátkodobě, systematicky, dermálně	0.34 mg/kg bw/den	40 mg/kg bw/den	0.008	0.0082
Krátkodobě, systematicky, inhalačně	0.05 mg/m ³	260 mg/m ³	0.0002	

RCR pracovník – PROC 2

Expozice	Odhad expozice	DNEL	RCR pro cestu	RCR kombinace
Dlouhodobě, systematicky, dermálně	1.37 mg/kg bw/den	40 mg/kg bw/den	0.034	0.060
Dlouhodobě, systematicky, inhalačně	6.67 mg/m ³	260 mg/m ³	0.026	
Krátkodobě, systematicky, dermálně	1.37 mg/kg bw/den	40 mg/kg bw/den	0.034	0.137
Krátkodobě, systematicky, inhalačně	26.67 mg/m ³	260 mg/m ³	0.103	

RCR pracovník – PROC 3

Expozice	Odhad expozice	DNEL	RCR pro cestu	RCR kombinace
Dlouhodobě, systematicky, dermálně	0.34 mg/kg bw/den	40 mg/kg bw/den	0.008	0.059
Dlouhodobě, systematicky, inhalačně	13.33 mg/m ³	260 mg/m ³	0.051	
Krátkodobě, systematicky, dermálně	0.34 mg/kg bw/den	40 mg/kg bw/den	0.008	0.293
Krátkodobě, systematicky, inhalačně	53.33 mg/m ³	260 mg/m ³	0.205	

RCR pracovník – PROC 4

Expozice	Odhad expozice	DNEL	RCR pro cestu	RCR kombinace
Dlouhodobě, systematicky, dermálně	6.86 mg/kg bw/den	40 mg/kg bw/den	0.171	0.222
Dlouhodobě, systematicky, inhalačně	13.33 mg/m ³	260 mg/m ³	0.051	
Krátkodobě, systematicky, dermálně	6.86 mg/kg bw/den	40 mg/kg bw/den	0.171	0.376
Krátkodobě, systematicky, inhalačně	53.33 mg/m ³	260 mg/m ³	0.205	

RCR pracovník – PROC 8a

Expozice	Odhad expozice	DNEL	RCR pro cestu	RCR kombinace
Dlouhodobě, systematicky, dermálně	13.71 mg/kg bw/den	40 mg/kg bw/den	0.343	0.471
Dlouhodobě, systematicky, inhalačně	33.33 mg/m ³	260 mg/m ³	0.128	
Krátkodobě, systematicky, dermálně	13.71 mg/kg bw/den	40 mg/kg bw/den	0.343	0.599
Krátkodobě, systematicky, inhalačně	66.67 mg/m ³	260 mg/m ³	0.256	

RCR pracovník – PROC 8b

Expozice	Odhad expozice	DNEL	RCR pro cestu	RCR kombinace
Dlouhodobě, systematicky, dermálně	6.86 mg/kg bw/den	40 mg/kg bw/den	0.171	0.194
Dlouhodobě, systematicky, inhalačně	6.00 mg/m ³	260 mg/m ³	0.023	
Krátkodobě, systematicky, dermálně	6.86 mg/kg bw/den	40 mg/kg bw/den	0.171	0.217
Krátkodobě, systematicky, inhalačně	12.00 mg/m ³	260 mg/m ³	0.046	

RCR pracovník – PROC 9

Expozice	Odhad expozice	DNEL	RCR pro cestu	RCR kombinace
Dlouhodobě, systematicky, dermálně	6.86 mg/kg bw/den	40 mg/kg bw/den	0.171	0.274
Dlouhodobě, systematicky, inhalačně	26.67 mg/m ³	260 mg/m ³	0.103	
Krátkodobě, systematicky, dermálně	6.86 mg/kg bw/den	40 mg/kg bw/den	0.171	0.376
Krátkodobě, systematicky, inhalačně	53.33 mg/m ³	260 mg/m ³	0.205	

Expoziční scénář 3

1. Název			
Zkrácený název	Výroba směsí a balení/přebalování látky a jejich směsí		
Systematický popis pomocí deskriptorů	ERC 2; PROC 1, 2, 3, 4, 8a, 8b, 9, a 15; SU 3, 10		
Pokryté procesy a aktivity	Směšování, balení a přebalování látky a jejich směsí v násadových nebo nepřetržitých procesech, včetně skladování, přenosu materiálu, mísení, velko- i maloobjemového balení, údržby a přidružených laboratorních úkonů.		
Metoda hodnocení expozice	Použitý nástroj: Ecetoc TRA pro pracovníky, verze 2 ¹		
2. Výrobní podmínky a opatření pro řízení rizik			
2.1 Kontrola expozice pracovníků pro PROC 1, 2, 3, and 4			
Frekvence a doba použití			
Doba použití	> 4	Hod/den	
Frekvence použití	≤ 240	Dní v roce	
Charakteristika produktu			
Skupenství látky	kapalné		
Koncentrace látky v produktu	100	%	
Tlak par látky	169.27	hPa	
Použité množství			
			Není relevantní v ECETOC TRA
Lidský faktor neovlivněný řízením rizik			
Dermálně exponované části těla	Dlaň jedné ruky (240 cm ²)		Týká se PROC 1 a 3
	Dlaně obou rukou (480 cm ²)		Týká se PROC 2 a 4
Další výrobní podmínky ovlivňující expozici pracovníků			
Oblast	Průmysl		
Uvnitř/venku	Uvnitř		
Technické podmínky a opatření proti úniku ve fázi výroby (u zdroje)			
Nejsou			
Technické podmínky a opatření kontroly šíření ze zdroje směrem k pracovníkovi			
Nutnost místního odsávání	Ne		Týká se PROC 1
	Ano		Účinnost: 90% Týká se PROC 2, 3 a 4
Organizační opatření pro předcházení/omezení úniku, šíření a expozice			

			Není relevantní v ECETOC TRA
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Podmínky osobní ochrany, hygienická a zdravotní opatření

Nutnost ochrany dýchacích cest	Ne		
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2.2 Kontrola expozice pracovníků pro PROC 8a, 8b, and 9

Frekvence a doba použití

Doba použití	> 4	Hod/den	
Frekvence použití	≤ 240	Dní v roce	

Charakteristika produktu (včetně návrhu balení, jež ovlivňuje expozici)

Skupenství látky	kapalné		
Koncentrace látky v produktu	100	%	
Tlak par látky	169.27	hPa	

Použité množství

			Není relevantní v ECETOC TRA
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Lidský faktor neovlivněný řízením rizik

Dermálně exponované části těla	Dlaně obou rukou (480 cm ²)		Týká se PROC 8b a 9
	Obě ruce (960 cm ²)		Týká se PROC 8a

Další výrobní podmínky ovlivňující expozici pracovníků

Oblast	Průmysl		
Uvnitř/venku	Uvnitř		

Technické podmínky a opatření proti úniku ve fázi výroby (u zdroje)

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Technické podmínky a opatření kontroly šíření ze zdroje směrem k pracovníkovi

Nutnost místního odsávání	Ano		Účinnost: 90% Týká se PROC 8a a 9
	Ano		Účinnost: 97% Týká se PROC 8b

Organizační opatření pro předcházení/omezení úniku, šíření a expozice

			Není relevantní v ECETOC TRA
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Podmínky osobní ochrany, hygienická a zdravotní opatření

Nutnost ochrany dýchacích cest	Ne		
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2.3 Kontrola expozice pracovníků pro PROC 15

Frekvence a doba použití

Doba použití	> 4	Hod/den	
Frekvence použití	≤ 240	Dní v roce	

Charakteristika produktu (včetně návrhu balení, jež ovlivňuje expozici)			
Skupenství látky	kapalné		
Koncentrace látky v produktu	100	%	
Tlak par látky	169.27	hPa	
Použité množství			

			Není relevantní v ECETOC TRA
Lidský faktor neovlivněný řízením rizik			
Dermálně exponované části těla	Dlaň jedné ruky (240cm ²)		
Další výrobní podmínky ovlivňující expozici pracovníků			
Oblast	Průmysl		
Uvnitř/venku	Uvnitř		
Technické podmínky a opatření proti úniku ve fázi výroby (u zdroje)			
Technické podmínky a opatření kontroly šíření ze zdroje směrem k pracovníkovi			
Nutnost místního odsávání	Ano		Účinnost: 90%
Organizační opatření pro předcházení/omezení úniku, šíření a expozice			
			Není relevantní v ECETOC TRA
Podmínky osobní ochrany, hygienická a zdravotní opatření			
Nutnost ochrany dýchacích cest	Ne		

- ¹ LEV: Modifikační úpravy dermální expozice, které jsou součástí ECETOC TRA v2, nebyly brány v potaz are not considered
Kombinovaný RCR: Kombinovaný RCR byl vypočten podle doporučení pokynů ECHA “Pokyny ohledně požadavků na informace a pro posouzení chemické bezpečnosti – část E: Charakterizace rizika“

Odhad expozice

Odhad expozice pro pracovníky – PROC 1

Cesta expozice	Koncentrace		Vysvětlivky
	Hodnota	Jednotka	
Dlouhodobě, systematicky, dermálně	0.34	mg/kg bw/d	
Dlouhodobě, systematicky, inhalačně	0.01	mg/m ³	

Krátkodobě, systematicky, dermálně	0.34	mg/kg bw/d	
Krátkodobě, systematicky, inhalačně	0.05	mg/m ³	Viz. obecné poznámky

Odhad expozice pro pracovníky – PROC 2

Cesta expozice	Koncentrace		Vysvětlivky
	Hodnota	Jednotka	
Dlouhodobě, systematicky, dermálně	1.37	mg/kg bw/d	
Dlouhodobě, systematicky, inhalačně	6.67	mg/m ³	
Krátkodobě, systematicky, dermálně	1.37	mg/kg bw/d	
Krátkodobě, systematicky, inhalačně	26.67	mg/m ³	Viz. obecné poznámky

Odhad expozice pro pracovníky – PROC 3

Cesta expozice	Koncentrace		Vysvětlivky
	Hodnota	Jednotka	
Dlouhodobě, systematicky, dermálně	0.34	mg/kg bw/d	
Dlouhodobě, systematicky, inhalačně	13.33	mg/m ³	
Krátkodobě, systematicky, dermálně	0.34	mg/kg bw/d	
Krátkodobě, systematicky, inhalačně	53.33	mg/m ³	Viz. obecné poznámky

Odhad expozice pro pracovníky – PROC 4

Cesta expozice	Koncentrace	Vysvětlivky
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	Hodnota	Jednotka	
Dlouhodobě, systematicky, dermálně	6.86	mg/kg bw/d	
Dlouhodobě, systematicky, inhalačně	13.33	mg/m ³	
Krátkodobě, systematicky, dermálně	6.86	mg/kg bw/d	

Krátkodobě, systemic, inhalative	53.33	mg/m ³	See general remarks
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Odhad expozice pro pracovníky – PROC 8a

Cesta expozice	Koncentrace		Vysvětlivky
	Hodnota	Jednotka	
Dlouhodobě, systematicky, dermálně	13.71	mg/kg bw/d	
Dlouhodobě, systematicky, inhalačně	33.33	mg/m ³	
Krátkodobě, systematicky, dermálně	13.71	mg/kg bw/d	
Krátkodobě, systematicky, inhalačně	66.67	mg/m ³	Viz. obecné poznámky

Odhad expozice pro pracovníky – PROC 8b

Cesta expozice	Koncentrace		Vysvětlivky
	Hodnota	Jednotka	
Dlouhodobě, systematicky, dermálně	6.86	mg/kg bw/d	
Dlouhodobě, systematicky, inhalačně	6.00	mg/m ³	
Krátkodobě, systematicky, dermálně	6.86	mg/kg bw/d	

Krátkodobě, systematicky inhalačně	12.00	mg/m ³	Viz. obecné poznámky
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Odhad expozice pro pracovníky – PROC 9

Cesta expozice	Koncentrace		Vysvětlivky
	Hodnota	Jednotka	
Dlouhodobě, systematicky, dermálně	6.86	mg/kg bw/d	
Dlouhodobě, systematicky, inhalačně	26.67	mg/m ³	
Krátkodobě, systematicky, dermálně	6.86	mg/kg bw/d	
Krátkodobě, systematicky, inhalačně	53.34	mg/m ³	Viz. obecné poznámky

Odhad expozice pro pracovníky – PROC 15

Cesta expozice	Koncentrace		Vysvětlivky
	Hodnota	Jednotka	
Dlouhodobě, systematicky, dermálně	0.34	mg/kg bw/d	
Dlouhodobě, systematicky, inhalačně	6.67	mg/m ³	
Krátkodobě, systematicky, dermálně	0.34	mg/kg bw/d	
Krátkodobě, systematicky, inhalačně	13.33	mg/m ³	Viz. obecné poznámky

Charakterizace rizika

Pracovníci

RCR pracovník – PROC 1

Expozice	Odhad expozice	DNEL	RCR pro cestu	RCR kombinace
Dlouhodobě, systematicky, dermálně	0.34 mg/kg bw/den	40 mg/kg bw/den	0.008	0.0080
Dlouhodobě, systematicky, inhalačně	0.01 mg/m ³	260 mg/m ³	0.00004	
Krátkodobě, systematicky, dermálně	0.34 mg/kg bw/den	40 mg/kg bw/den	0.008	0.0082
Krátkodobě, systematicky, inhalačně	0.05 mg/m ³	260 mg/m ³	0.0002	

RCR pracovník – PROC 2

Expozice	Odhad expozice	DNEL	RCR pro cestu	RCR kombinace
Dlouhodobě, systematicky, dermálně	1.37 mg/kg bw/den	40 mg/kg bw/den	0.034	0.060
Dlouhodobě, systematicky, inhalačně	6.67 mg/m ³	260 mg/m ³	0.026	
Krátkodobě, systematicky, dermálně	1.37 mg/kg bw/den	40 mg/kg bw/den	0.034	0.137
Krátkodobě, systematicky, inhalačně	26.67 mg/m ³	260 mg/m ³	0.103	

RCR pracovník – PROC 3

Expozice	Odhad expozice	DNEL	RCR pro cestu	RCR kombinace
Dlouhodobě, systematicky, dermálně	0.34 mg/kg bw/den	40 mg/kg bw/den	0.008	0.059
Dlouhodobě, systematicky, inhalačně	13.33 mg/m ³	260 mg/m ³	0.051	
Krátkodobě, systematicky, dermálně	0.34 mg/kg bw/den	40 mg/kg bw/den	0.008	0.213
Krátkodobě, systematicky, inhalačně	53.33 mg/m ³	260 mg/m ³	0.205	

RCR pracovník – PROC 4

Expozice	Odhad expozice	DNEL	RCR pro cestu	RCR kombinace
Dlouhodobě, systematicky, dermálně	6.86 mg/kg bw/den	40 mg/kg bw/den	0.171	0.222
Dlouhodobě, systematicky, inhalačně	13.33 mg/m ³	260 mg/m ³	0.051	
Krátkodobě, systematicky, dermálně	6.86 mg/kg bw/den	40 mg/kg bw/den	0.171	0.376
Krátkodobě, systematicky, inhalačně	53.33 mg/m ³	260 mg/m ³	0.205	

RCR pracovník – PROC 8a

Expozice	Odhad expozice	DNEL	RCR pro cestu	RCR kombinace
Dlouhodobě, systematicky, dermálně	13.71 mg/kg bw/den	40 mg/kg bw/den	0.343	0.471
Dlouhodobě, systematicky, inhalačně	33.33 mg/m ³	260 mg/m ³	0.128	
Krátkodobě, systematicky, dermálně	13.71 mg/kg bw/den	40 mg/kg bw/den	0.343	0.599
Krátkodobě, systematicky, inhalačně	66.67 mg/m ³	260 mg/m ³	0.256	

RCR pracovník – PROC 8b

Expozice	Odhad expozice	DNEL	RCR pro cestu	RCR kombinace
Dlouhodobě, systematicky, dermálně	6.86 mg/kg bw/den	40 mg/kg bw/den	0.171	0.194
Dlouhodobě, systematicky, inhalačně	6.00 mg/m ³	260 mg/m ³	0.023	
Krátkodobě, systematicky, dermálně	6.86 mg/kg bw/den	40 mg/kg bw/den	0.171	0.217
Krátkodobě, systematicky, inhalačně	12.00 mg/m ³	260 mg/m ³	0.046	

RCR pracovník – PROC 9

Expozice	Odhad expozice	DNEL	RCR pro cestu	RCR kombinace
Dlouhodobě, systematicky, dermálně	6.86 mg/kg bw/den	40 mg/kg bw/den	0.171	0.274
Dlouhodobě, systematicky, inhalačně	26.67 mg/m ³	260 mg/m ³	0.103	
Krátkodobě, systematicky, dermálně	6.86 mg/kg bw/den	40 mg/kg bw/den	0.171	0.376
Krátkodobě, systematicky, inhalačně	53.33 mg/m ³	260 mg/m ³	0.205	

RCR pracovník – PROC 15

Expozice	Odhad expozice	DNEL	RCR pro cestu	RCR kombinace
Dlouhodobě, systematicky, dermálně	0.34 mg/kg bw/den	40 mg/kg bw/den	0.009	0.035
Dlouhodobě, systematicky, inhalačně	6.67 mg/m ³	260 mg/m ³	0.026	
Krátkodobě, systematicky, dermálně	0.34 mg/kg bw/den	40 mg/kg bw/den	0.009	0.060
Krátkodobě, systematicky, inhalačně	13.33 mg/m ³	260 mg/m ³	0.051	

Exposure Scenario 4

1. Title			
Free short title	Use as a fuel in industrial settings		
Systematic title based on use descriptor	ERC 8b; PROC 1, 2, 3, 8a, 8b, 16 and 19; SU 3		
Processes, tasks activities covered	Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste		
Exposure assessment methodology	Tool used: ECETOC TRA workers (v2.0) modified ¹		
2. Operational conditions and risk management measures			
2.1 Control of workers exposure for PROC 1, 2, and 3			
Frequency and duration of use			
Duration of exposure	> 4	Hours/day	
Frequency of exposure	≤ 240	Days/year	

Product characteristics			
Physical state of the product	liquid		
Concentration of substance in product	100	%	
Vapour pressure of substance	169.27	hPa	
Amounts used			
			Not relevant in ECETOC TRA
Human factors not influenced by risk management			
Exposed body parts dermal	Palm of one hand (240 cm ²)		Relevant for PROC 1 and 3
	Palm of both hands (480 cm ²)		Relevant for PROC 2
Other given operational conditions affecting workers exposure			
Domain	Industrial		
Inside/outside	Inside		
Technical conditions and measures at process level (source) to prevent release			
None			
Conditions and measures to control dispersion from source towards the worker			
Local exhaust ventilation required	No		Relevant for PROC 1
	Yes		Effectiveness: 90% Relevant for PROC 2 and 3
Organisational measures to prevent /limit releases, dispersion and exposure			
			Not relevant in ECETOC TRA
Conditions and measures related to personal protection, hygiene and health evaluation			
Respiratory protection required	No		
2.2 Control of workers exposure for PROC 8a and 8b			
Frequency and duration of use			
Duration of exposure	> 4	Hours/day	
Frequency of exposure	≤ 240	Days/year	
Product characteristics (including package design affecting exposure)			
Physical state of the product	liquid		
Concentration of substance in product	100	%	
Vapour pressure of substance	169.27	hPa	
Amounts used			
			Not relevant in ECETOC TRA

Human factors not influenced by risk management			
Exposed body parts dermal	Palm of both hands (480 cm ²)		Relevant for PROC 8b
	Both hands		Relevant for PROC 8a
	(960 cm ²)		
Other given operational conditions affecting workers exposure			
Domain	Industrial		
Inside/outside	Inside		
Technical conditions and measures at process level (source) to prevent release			
Conditions and measures to control dispersion from source towards the worker			
Local exhaust ventilation required	Yes		Effectiveness: 90% Relevant for PROC 8a
	Yes		Effectiveness: 97% Relevant for PROC 8b
Organisational measures to prevent /limit releases, dispersion and exposure			
			Not relevant in ECETOC TRA
Conditions and measures related to personal protection, hygiene and health evaluation			
Respiratory protection required	No		
2.3 Control of workers exposure for PROC 15			
Frequency and duration of use			
Duration of exposure	> 4	Hours/day	
Frequency of exposure	≤ 240	Days/year	
Product characteristics (including package design affecting exposure)			
Physical state of the product	liquid		
Concentration of substance in product	100	%	
Vapour pressure of substance	169.27	hPa	
Amounts used			
			Not relevant in ECETOC TRA
Human factors not influenced by risk management			
Exposed body parts dermal	Palm of one hand (240cm ²)		
Other given operational conditions affecting workers exposure			
Domain	Industrial		
Inside/outside	Inside		
Technical conditions and measures at process level (source) to prevent release			

Conditions and measures to control dispersion from source towards the worker			
Local exhaust ventilation required	Yes		Effectiveness: 90%
Organisational measures to prevent /limit releases, dispersion and exposure			
			Not relevant in ECETOC TRA
Conditions and measures related to personal protection, hygiene and health evaluation			
Respiratory protection required	No		
2.3 Control of workers exposure for PROC 16			

Frequency and duration of use			
Duration of exposure	> 4	hours/day	
Frequency of exposure	≤ 240	Days/year	
Product characteristics (including package design affecting exposure)			
Physical state of the product	liquid		
Concentration of substance in product	100	%	
Vapour pressure of substance	169.27	hPa	
Amounts used			
			Not relevant in ECETOC TRA
Human factors not influenced by risk management			
Exposed body parts dermal	Palm of one hand (240cm ²)		
Other given operational conditions affecting workers exposure			
Domain	Industrial		
Inside/outside	Inside		
Technical conditions and measures at process level (source) to prevent release			
Conditions and measures to control dispersion from source towards the worker			
Local exhaust ventilation required	No		
Organisational measures to prevent /limit releases, dispersion and exposure			
			Not relevant in ECETOC TRA
Conditions and measures related to personal protection, hygiene and health evaluation			
Respiratory protection required	No		
2.4 Control of workers exposure for PROC 19			
Frequency and duration of use			
Duration of exposure	1 - 4	hours/day	
Frequency of exposure	≤ 240	Days/year	
Product characteristics (including package design affecting exposure)			
Physical state of the product	liquid		

Concentration of substance in product	Max. 10	%	
Vapour pressure of substance	169.27	hPa	
Amounts used			
			Not relevant in ECETOC TRA
Human factors not influenced by risk management			
Exposed body parts dermal	Both hands and forearms (1980 cm ²)		
Other given operational conditions affecting workers exposure			
Domain	Industrial		
Inside/outside	Inside		

Technical conditions and measures at process level (source) to prevent release			
None			
Conditions and measures to control dispersion from source towards the worker			
Local exhaust ventilation required	No		
Organisational measures to prevent /limit releases, dispersion and exposure			
			Not relevant in ECETOC TRA
Conditions and measures related to personal protection, hygiene and health evaluation			
Respiratory protection required	No		
Use of suitable gloves	Yes		Covered within the PROC exposure estimates

- ¹ LEV: The LEV exposure modifying factors for dermal exposure implemented in the ECETOC TRA v2.0 are not considered
- Preparation: Concentration of substance is considered following a linear approach; this applies for inhalative and dermal exposure values for liquids and solids
- RCR combined: RCR combined is calculated following the recommendation in the ECHA guidance document "Guidance on information requirements and chemical safety assessment – Part E: Risk characterization"

Exposure Estimation

Estimated exposure for workers – PROC 1

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	0.34	mg/kg bw/d	

Long-term exposure, systemic , inhalative	0.01	mg/m ³	
Short-term exposure, systemic, dermal	0.34	mg/kg bw/d	
Short-term exposure, systemic, inhalative	0.05	mg/m ³	See general remarks

Estimated exposure for workers – PROC 2

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	1.37	mg/kg bw/d	

Long-term exposure, systemic , inhalative	6.67	mg/m ³	
Short-term exposure, systemic, dermal	1.37	mg/kg bw/d	
Short-term exposure, systemic, inhalative	26.67	mg/m ³	See general remarks

Estimated exposure for workers – PROC 3

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	0.34	mg/kg bw/d	
Long-term exposure, systemic , inhalative	13.33	mg/m ³	
Short-term exposure, systemic, dermal	0.34	mg/kg bw/d	
Short-term exposure, systemic, inhalative	53.33	mg/m ³	See general remarks

Estimated exposure for workers – PROC 8a

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	13.71	mg/kg bw/d	
Long-term exposure, systemic , inhalative	33.33	mg/m ³	
Short-term exposure, systemic, dermal	13.71	mg/kg bw/d	
Short-term exposure, systemic, inhalative	66.67	mg/m ³	See general remarks

Estimated exposure for workers – PROC 8b

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	6.86	mg/kg bw/d	
Long-term exposure, systemic , inhalative	6.00	mg/m ³	
Short-term exposure, systemic, dermal	6.86	mg/kg bw/d	
Short-term exposure, systemic, inhalative	12.00	mg/m ³	See general remarks

Estimated exposure for workers – PROC 16

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	0.34	mg/kg bw/d	
Long-term exposure, systemic , inhalative	33.33	mg/m ³	
Short-term exposure, systemic, dermal	0.34	mg/kg bw/d	

Short-term exposure, systemic, inhalative	66.67	mg/m ³	
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NA = Not applicable

Estimated exposure for workers – PROC 19

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	14.14	mg/kg bw/d	
Long-term exposure, systemic, inhalative	20.00	mg/m ³	
Short-term exposure, systemic, dermal	14.14	mg/kg bw/d	

Short-term exposure, systemic, inhalative	40.00	mg/m ³	See general remarks
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Risk Characterisation

Workers

RCRs Worker – PROC 1

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, dermal	0.34 mg/kg bw/day	40 mg/kg bw/day	0.008	0.0080
Long-term exposure, systemic, inhalative	0.01 mg/m ³	260 mg/m ³	0.00004	
Short-term exposure, systemic, dermal	0.34 mg/kg bw/day	40 mg/kg bw/day	0.008	0.0082
Short-term exposure, systemic, inhalative	0.05 mg/m ³	260 mg/m ³	0.0002	

RCRs Worker – PROC 2

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, dermal	1.37 mg/kg bw/day	40 mg/kg bw/day	0.034	0.060
Long-term exposure, systemic, inhalative	6.67 mg/m ³	260 mg/m ³	0.026	

systemic, inhalative

Short-term exposure, systemic, dermal	1.37 mg/kg bw/day	40 mg/kg bw/day	0.034	0.137
Short-term exposure, systemic, inhalative	26.67 mg/m ³	260 mg/m ³	0.103	

RCRs Worker – PROC 3

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, dermal	0.34 mg/kg bw/day	40 mg/kg bw/day	0.008	0.059
Long-term exposure, systemic, inhalative	13.33 mg/m ³	260 mg/m ³	0.051	
Short-term exposure, systemic, dermal	0.34 mg/kg bw/day	40 mg/kg bw/day	0.008	0.213
Short-term exposure, systemic, inhalative	53.33 mg/m ³	260 mg/m ³	0.205	

RCRs Worker – PROC 8a

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, dermal	13.71 mg/kg bw/day	40 mg/kg bw/day	0.343	0.471
Long-term exposure, systemic, inhalative	33.33 mg/m ³	260 mg/m ³	0.128	
Short-term exposure, systemic, dermal	13.71 mg/kg bw/day	40 mg/kg bw/day	0.343	0.599
Short-term exposure, systemic, inhalative	66.67 mg/m ³	260 mg/m ³	0.256	

RCRs Worker – PROC 8b

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, dermal	6.86 mg/kg bw/day	40 mg/kgbw/day	0.171	0.194
Long-term exposure, systemic, inhalative	6,00 mg/m ³	260 mg/m ³	0.023	
Short-term exposure, systemic, dermal	6.86 mg/kg bw/day	40 mg/kg bw/day	0.171	0.217
Short-term exposure, systemic, inhalative	12,0 mg/m ³	260 mg/m ³	0.046	

RCRs Worker – PROC 16

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, dermal	0.34 mg/kg bw/day	40 mg/kg bw/day	0.008	0.136
Long-term exposure, systemic, inhalative	33.33 mg/m ³	260 mg/m ³	0.128	
Short-term exposure, systemic, dermal	0.34 mg/kg bw/day	40 mg/kg bw/day	0.008	0.264
Short-term exposure, systemic, inhalative	66.67 mg/m ³	260 mg/m ³	0.256	

RCRs Worker – PROC 19

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, dermal	14.14 mg/kg bw/day	40 mg/kg bw/day	0.354	0.431
Long-term exposure, systemic, inhalative	20.00 mg/m ³	260 mg/m ³	0.077	
Short-term exposure, systemic, dermal	14.14 mg/kg bw/day	40 mg/kg bw/day	0.354	0.508
Short-term exposure, systemic, inhalative	40.00 mg/m ³	260 mg/m ³	0.154	

Exposure Scenario 5

1. Title	
Free short title	Use as a fuel in professional settings
Systematic title based on use descriptor	ERC 8b and 8e; PROC 1, 2, 3, 8a, 8b, 16, and 19; SU 22
Processes, tasks activities covered	Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.
Exposure assessment methodology	Tool used: ECETOC TRA workers (v2.0) modified ¹
2. Operational conditions and risk management measures	

2.1 Control of workers exposure for PROC 1, 2, and 3			
Frequency and duration of use			
Duration of exposure	> 4	Hours/day	Relevant for PROC 1, 2 and 3
Frequency of exposure	≤ 240	Days/year	
Product characteristics			
Physical state of the product	liquid		
Concentration of substance in product	100	%	
Vapour pressure of substance	169.27	hPa	
Amounts used			
			Not relevant in ECETOC TRA
Human factors not influenced by risk management			
Exposed body parts dermal	Palm of one hands (240 cm ²)		Relevant for PROC 1 and 3
	Palm of both hands (480 cm ²)		Relevant for PROC 2
Other given operational conditions affecting workers exposure			
Domain	Professional		
Inside/outside	Inside		
Technical conditions and measures at process level (source) to prevent release			
None			
Conditions and measures to control dispersion from source towards the worker			
Local exhaust ventilation required	No		Relevant for PROC 1

	Yes		Effectiveness: 80% Relevant for PROC 2 and 3
Organisational measures to prevent /limit releases, dispersion and exposure			
			Not relevant in ECETOC TRA
Conditions and measures related to personal protection, hygiene and health evaluation			
Respiratory protection required	No		
2.2 Control of workers exposure for PROC 8a and 8b			
Frequency and duration of use			
Duration of exposure	> 4	Hours/day	
Frequency of exposure	≤ 240	Days/year	
Product characteristics (including package design affecting exposure)			
Physical state of the product	liquid		

Concentration of substance in product	Max. 5	%	
Vapour pressure of substance	169.27	hPa	
Amounts used			
			Not relevant in ECETOC TRA
Human factors not influenced by risk management			
Exposed body parts dermal	Palm of both hands (480 cm ²)		Relevant for PROC 8b
	Both hands (960 cm ²)		Relevant for PROC 8a
Other given operational conditions affecting workers exposure			
Domain	Professional		
Inside/outside	Inside		
Technical conditions and measures at process level (source) to prevent release			
Conditions and measures to control dispersion from source towards the worker			
Local exhaust ventilation required	No		
Organisational measures to prevent /limit releases, dispersion and exposure			
			Not relevant in ECETOC TRA
Conditions and measures related to personal protection, hygiene and health evaluation			
Respiratory protection required	No		
2.4 Control of workers exposure for PROC 16			
Frequency and duration of use			
Duration of exposure	> 4	hours/day	
Frequency of exposure	≤ 240	Days/year	
Product characteristics (including package design affecting exposure)			
Physical state of the product	liquid		
Concentration of substance in product	100	%	

Vapour pressure of substance	169.27	hPa	
Amounts used			
			Not relevant in ECETOC TRA
Human factors not influenced by risk management			
Exposed body parts dermal	Palm of one hand (240cm ²)		
Other given operational conditions affecting workers exposure			
Domain	Professional		
Inside/outside	Inside		
Technical conditions and measures at process level (source) to prevent release			
Conditions and measures to control dispersion from source towards the worker			
Local exhaust ventilation required	No		
Organisational measures to prevent /limit releases, dispersion and exposure			
			Not relevant in ECETOC TRA
Conditions and measures related to personal protection, hygiene and health evaluation			
Respiratory protection required	No		
2.5 Control of workers exposure for PROC 19			
Frequency and duration of use			
Duration of exposure	1 - 4	hours/day	
Frequency of exposure	≤ 240	Days/year	
Product characteristics (including package design affecting exposure)			
Physical state of the product	liquid		
Concentration of substance in product	Max. 10	%	
Vapour pressure of substance	169.27	hPa	
Amounts used			
			Not relevant in ECETOC TRA
Human factors not influenced by risk management			
Exposed body parts dermal	Both hands and forearms (1980 cm ²)		
Other given operational conditions affecting workers exposure			
Domain	Professional		
Inside/outside	Inside		
Technical conditions and measures at process level (source) to prevent release			
None			
Conditions and measures to control dispersion from source towards the worker			

Local exhaust ventilation required	No		
Organisational measures to prevent /limit releases, dispersion and exposure			
			Not relevant in ECETOC

			TRA
Conditions and measures related to personal protection, hygiene and health evaluation			
Respiratory protection required	No		
Use of suitable gloves	Yes		Covered within the PROC exposure estimates

- ¹ LEV: The LEV exposure modifying factors for dermal exposure implemented in the ECETOC TRA v2.0 are not considered
- Preparation: concentration of substance is considered following a linear approach; this applies for inhalative and dermal exposure values for liquids and solids
- RCR combined: RCR combined is calculated following the recommendation in the ECHA guidance document “Guidance on information requirements and chemical safety assessment – Part E: Risk characterization”

Exposure Estimation

Estimated exposure for workers – PROC 1

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	0.34	mg/kg bw/d	
Long-term exposure, systemic , inhalative	0.13	mg/m ³	
Short-term exposure, systemic, dermal	0.34	mg/kg bw/d	
Short-term exposure, systemic, inhalative	0.53	mg/m ³	See general remarks

Estimated exposure for workers – PROC 2

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	1.37	mg/kg bw/d	

Long-term exposure, systemic , inhalative	13.33	mg/m ³	
Short-term exposure, systemic, dermal	1.37	mg/kg bw/d	

Short-term exposure, systemic, inhalative	53.33	mg/m ³	See general remarks
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Estimated exposure for workers – PROC 3

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	0.34	mg/kg bw/d	
Long-term exposure, systemic , inhalative	26.67	mg/m ³	
Short-term exposure, systemic, dermal	0.34	mg/kg bw/d	
Short-term exposure, systemic, inhalative	106.67	mg/m ³	See general remarks

Estimated exposure for workers – PROC 8a

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	0.68	mg/kg bw/d	
Long-term exposure, systemic , inhalative	33.33	mg/m ³	
Short-term exposure, systemic, dermal	0.68	mg/kg bw/d	
Short-term exposure, systemic, inhalative	66.67	mg/m ³	See general remarks

Estimated exposure for workers – PROC 8b

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	0.34	mg/kg bw/d	

Long-term exposure, systemic , inhalative	16.67	mg/m ³	
Short-term exposure, systemic, dermal	0.34	mg/kg bw/d	
Short-term exposure, systemic, inhalative	33.34	mg/m ³	See general remarks

Estimated exposure for workers – PROC 16

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	0.34	mg/kg bw/d	
Long-term exposure, systemic , inhalative	66.67	mg/m ³	
Short-term exposure, systemic, dermal	0.34	mg/kg bw/d	
Short-term exposure, systemic, inhalative	133.34	mg/m ³	

Estimated exposure for workers – PROC 19

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	14.14	mg/kg bw/d	

Long-term exposure, systemic , inhalative	40.00	mg/m ³	
Short-term exposure, systemic, dermal	14.14	mg/kg bw/d	
Short-term exposure, systemic, inhalative	80.00	mg/m ³	See general remarks

Risk Characterisation

Workers

RCRs Worker – PROC 1

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, dermal	0.34 mg/kg bw/day	40 mg/kg bw/day	0.008	0.009
Long-term exposure, systemic, inhalative	0.13 mg/m ³	260 mg/m ³	0.0005	
Short-term exposure, systemic, dermal	0.34 mg/kg bw/day	40 mg/kg bw/day	0.008	0.010
Short-term exposure, systemic, inhalative	0.53 mg/m ³	260 mg/m ³	0.002	

RCRs Worker – PROC 2

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, dermal	1.37 mg/kg bw/day	40 mg/kg bw/day	0.034	0.085
Long-term exposure, systemic, inhalative	13.33 mg/m ³	260 mg/m ³	0.51	
Short-term exposure, systemic, dermal	1.37 mg/kg bw/day	40 mg/kg bw/day	0.034	0.239
Short-term exposure, systemic, inhalative	53.33 mg/m ³	260 mg/m ³	0.205	

RCRs Worker – PROC 3

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure,	0.34 mg/kg bw/day	40 mg/kg	0.008	0.111

systemic, dermal		bw/day		
Long-term exposure, systemic, inhalative	26.67 mg/m ³	260 mg/m ³	0.103	
Short-term exposure, systemic, dermal	0.34 mg/kg bw/day	40 mg/kg bw/day	0.008	0.418
Short-term exposure, systemic, inhalative	106.67 mg/m ³	260 mg/m ³	0.410	

RCRs Worker – PROC 8a

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, dermal	0.68 mg/kg bw/day	40 mg/kg bw/day	0.017	0.145
Long-term exposure, systemic, inhalative	33.33 mg/m ³	260 mg/m ³	0.128	
Short-term exposure, systemic, dermal	0.68 mg/kg bw/day	40 mg/kg bw/day	0.017	0.274
Short-term exposure, systemic, inhalative	66.67 mg/m ³	260 mg/m ³	0.256	

RCRs Worker – PROC 8b

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, dermal	0.34 mg/kg bw/day	40 mg/kg bw/day	0.008	0.072
Long-term exposure, systemic, inhalative	16.67 mg/m ³	260 mg/m ³	0.064	
Short-term exposure, systemic, dermal	0.349 mg/kg bw/day	40 mg/kg bw/day	0.008	0.136
Short-term exposure, systemic, inhalative	33.33 mg/m ³	260 mg/m ³	0.128	

RCRs Worker – PROC 16

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, dermal	0.34 mg/kg bw/day	40 mg/kg bw/day	0.009	0.165
Long-term exposure, systemic, inhalative	66.67 mg/m ³	260 mg/m ³	0.256	

Short-term exposure, systemic, dermal	0.34 mg/kg bw/day	40 mg/kg bw/day	0.009	0.522
Short-term exposure, systemic, inhalative	133.34 mg/m ³	260 mg/m ³	0.513	

RCRs Worker – PROC 19

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, dermal	14.14 mg/kg bw/day	40 mg/kg bw/day	0.354	0.505
Long-term exposure, systemic, inhalative	40.00 mg/m ³	260 mg/m ³	0.154	
Short-term exposure, systemic, dermal	14.14 mg/kg bw/day	40 mg/kg bw/day	0.354	0.662
Short-term exposure, systemic, inhalative	80.00 mg/m ³	260 mg/m ³	0.308	

Exposure Scenario 6

General remarks

PROC 7:

As ECETOC TRA generally is considered to be not suitable for the calculation of processes including aerosol generation, the inhalative exposure concerning the spraying process was evaluated using Stoffenmanager v4.0.

Within this inhalative exposure scenario the use of a spray cabin (open or closed without specific ventilation) is assumed. The exposure assessment is considered as a worst case calculation, as industrial spray processes are fully automated tasks.

Thus, the dermal exposure of the worker towards the substance is regarded to be negligible within industrial spray processes.

1. Title			
Free short title	Industrial use in cleaning agents		
Systematic title based on use descriptor	ERC 4; PROC 1, 2, 3, 4, 7, 8a, 8b, 10 and 13; SU 3		
Processes, tasks activities covered	Covers the use as a component of cleaning products including transfer from storage, pouring/unloading from drums or containers. Exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand), related equipment cleaning and maintenance.		
Exposure assessment methodology	Tool used: ECETOC TRA workers (v2.0) modified ¹ and Stoffenmanager v3.5 (only PROC 7)		
2. Operational conditions and risk management measures			
2.1 Control of workers exposure for PROC 1, 2, 3, and 4			
Frequency and duration of use			
Duration of exposure	> 4	Hours/day	
Frequency of exposure	≤ 240	Days/year	
Product characteristics			
Physical state of the product	liquid		
Concentration of substance in product	100	%	
Vapour pressure of substance	169.27	hPa	
Amounts used			
			Not relevant in ECETOC TRA
Human factors not influenced by risk management			
Exposed body parts dermal	Palm of one hand (240 cm ²)		Relevant for PROC 1 and 3
	Palm of both hands (480 cm ²)		Relevant for PROC 2 and 4

Other given operational conditions affecting workers exposure			
Domain	Industrial		
Inside/outside	Inside		
Technical conditions and measures at process level (source) to prevent release			
None			
Conditions and measures to control dispersion from source towards the worker			
Local exhaust ventilation required	No		Relevant for PROC 1
	Yes		Effectiveness: 90% Relevant for PROC 2, 3 and 4
Organisational measures to prevent /limit releases, dispersion and exposure			
			Not relevant in ECETOC TRA
Conditions and measures related to personal protection, hygiene and health evaluation			
Respiratory protection required	No		
2.2 Control of workers exposure for PROC 7			
Frequency and duration of use			
Duration of exposure	8	Hours/day	Value has no influence on the result
Frequency of exposure	4-5	Days/week	
Product characteristics (including package design affecting exposure)			
Physical state of the product	liquid		
Concentration of substance in product	100	%	
Vapour pressure of substance	169.27	hPa	
Amounts used			
			Not relevant in the Stoffenmanager
Human factors not influenced by risk management			
			Not relevant in the Stoffenmanager
Other given operational conditions affecting workers exposure			
Inside/outside	Inside		
Room volume	> 1000	m ³	
Work within one meter of the source	No		
Technical conditions and measures at process level (source) to prevent release			
			None
Conditions and measures to control dispersion from source towards the worker			

Segregation	Worker is not within one meter of the source		
Immision controls	Work in a spray cabin without specific		
	ventilation system		
Organisational measures to prevent /limit releases, dispersion and exposure			
Work area regularly cleaned	Yes		
Equipment regularly inspected and well cleaned	Yes		
Conditions and measures related to personal protection, hygiene and health evaluation			
Respiratory protection required	No		
2.3 Control of workers exposure for PROC 8a and 8b			
Frequency and duration of use			
Duration of exposure	> 4	Hours/day	
Frequency of exposure	≤ 240	Days/year	
Product characteristics (including package design affecting exposure)			
Physical state of the product	liquid		
Concentration of substance in product	100	%	
Vapour pressure of substance	169.27	hPa	
Amounts used			
			Not relevant in ECETOC TRA
Human factors not influenced by risk management			
Exposed body parts dermal	Palm of both hands (480 cm ²)		Relevant for PROC 8b
	Both hands (960 cm ²)		Relevant for PROC 8a
Other given operational conditions affecting workers exposure			
Domain	Industrial		
Inside/outside	Inside		
Technical conditions and measures at process level (source) to prevent release			
Conditions and measures to control dispersion from source towards the worker			
	Yes		Effectiveness: 90% Relevant for PROC 8a

Local exhaust ventilation required	Yes		Effectiveness: 97% Relevant for PROC 8b
Organisational measures to prevent /limit releases, dispersion and exposure			
			Not relevant in ECETOC TRA
Conditions and measures related to personal protection, hygiene and health evaluation			
Respiratory protection required	No		
2.4 Control of workers exposure for PROC 10			
Frequency and duration of use			
Duration of exposure	> 4	Hours/day	

Frequency of exposure	≤ 240	Days/year	
Product characteristics (including package design affecting exposure)			
Physical state of the product	liquid		
Concentration of substance in product	80	%	
Vapour pressure of substance	169.27	hPa	
Amounts used			
			Not relevant in ECETOC TRA
Human factors not influenced by risk management			
Exposed body parts dermal	Both hands (960 cm ²)		
Other given operational conditions affecting workers exposure			
Inside/outside	Inside		
Technical conditions and measures at process level (source) to prevent release			
Conditions and measures to control dispersion from source towards the worker			
Local exhaust ventilation required	Yes		Effectiveness: 90%
Organisational measures to prevent /limit releases, dispersion and exposure			
			Not relevant in ECETOC TRA
Conditions and measures related to personal protection, hygiene and health evaluation			
Respiratory protection required	No		
2.5 Control of workers exposure for PROC 13			
Frequency and duration of use			
Duration of exposure	> 4	Hours/day	
Frequency of exposure	≤ 240	Days/year	
Product characteristics (including package design affecting exposure)			
Physical state of the product	liquid		
Concentration of substance in product	100	%	

Vapour pressure of substance	169.27	hPa	
Amounts used			
			Not relevant in ECETOC TRA
Human factors not influenced by risk management			
Exposed body parts dermal	Palm ob Both hands (480 cm ²)		
Other given operational conditions affecting workers exposure			
Inside/outside	Inside		
Technical conditions and measures at process level (source) to prevent release			
Conditions and measures to control dispersion from source towards the worker			

Organisational measures to prevent /limit releases, dispersion and exposure			
			Not relevant in ECETOC TRA
Conditions and measures related to personal protection, hygiene and health evaluation			
Respiratory protection required	No		

- ¹ LEV: The LEV exposure modifying factors for dermal exposure implemented in the ECETOC TRA v2.0 are not considered
- Preparation: concentration of substance is considered following a linear approach; this applies for inhalative and dermal exposure values for liquids and solids
- RCR combined: RCR combined is calculated following the recommendation in the ECHA guidance document “Guidance on information requirements and chemical safety assessment – Part E: Risk characterization”

Exposure Estimation

Estimated exposure for workers – PROC 1

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	0.34	mg/kg bw/d	
Long-term exposure, systemic , inhalative	0.01	mg/m ³	
Short-term exposure, systemic, dermal	0.34	mg/kg bw/d	

Short-term exposure, systemic, inhalative	0.05	mg/m ³	See general remarks
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Estimated exposure for workers – PROC 2

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	1.37	mg/kg bw/d	
Long-term exposure, systemic , inhalative	6.67	mg/m ³	
Short-term exposure, systemic, dermal	1.37	mg/kg bw/d	
Short-term exposure, systemic, inhalative	26.67	mg/m ³	See general remarks

Estimated exposure for workers – PROC 3

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	0.34	mg/kg bw/d	
Long-term exposure, systemic , inhalative	13.33	mg/m ³	
Short-term exposure, systemic, dermal	0.34	mg/kg bw/d	
Short-term exposure, systemic, inhalative	53.33	mg/m ³	See general remarks

Estimated exposure for workers – PROC 4

Route of exposure	Concentrations		Justification
	Value	Unit	

Long-term exposure, systemic, dermal	6.86	mg/kg bw/d	
Long-term exposure, systemic , inhalative	13.33	mg/m ³	
Short-term exposure, systemic, dermal	6.86	mg/kg bw/d	
Short-term exposure, systemic, inhalative	53.33	mg/m ³	See general remarks

Estimated exposure for workers – PROC 7

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	NA	mg/kg bw/d	See general remarks
Long-term exposure, systemic , inhalative	141.1	mg/m ³	75 th percentile

Short-term exposure, systemic, inhalative	141.1	mg/m ³	75 th percentile
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NA = Not applicable

Estimated exposure for workers – PROC 8a

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	13.71	mg/kg bw/d	
Long-term exposure, systemic , inhalative	33.33	mg/m ³	
Short-term exposure, systemic, dermal	13.71	mg/kg bw/d	
Short-term exposure, systemic, inhalative	66.67	mg/m ³	See general remarks

Estimated exposure for workers – PROC 8b

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	6.86	mg/kg bw/d	
Long-term exposure, systemic , inhalative	6.00	mg/m ³	
Short-term exposure, systemic, dermal	6.86	mg/kg bw/d	
Short-term exposure, systemic, inhalative	12.00	mg/m ³	See general remarks

Estimated exposure for workers – PROC 10

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	21.94	mg/kg bw/d	

Long-term exposure, systemic , inhalative	26.67	mg/m ³	
Short-term exposure, systemic, dermal	21.94	mg/kg bw/d	
Short-term exposure, systemic, inhalative	53.34	mg/m ³	See general remarks

Estimated exposure for workers – PROC 13

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	13.71	mg/kg bw/d	

Long-term exposure, systemic , inhalative	33.33	mg/m ³	
Short-term exposure, systemic, dermal	13.71	mg/kg bw/d	
Short-term exposure, systemic, inhalative	66.67	mg/m ³	See general remarks

Risk Characterisation

Workers

CRs Worker – PROC 1

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, dermal	0.34 mg/kg bw/day	40 mg/kg bw/day	0.008	0.0080
Long-term exposure, systemic, inhalative	0.01 mg/m ³	260 mg/m ³	0.00004	
Short-term exposure, systemic, dermal	0.34 mg/kg bw/day	40 mg/kg bw/day	0.008	0.0082
Short-term exposure, systemic, inhalative	0.05 mg/m ³	260 mg/m ³	0.0002	

RCRs Worker – PROC 2

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, dermal	1.37 mg/kg bw/day	40 mg/kg bw/day	0.034	0.060
Long-term exposure, systemic, inhalative	6.67 mg/m ³	260 mg/m ³	0.026	
Short-term exposure, systemic, dermal	1.37 mg/kg bw/day	40 mg/kg bw/day	0.034	0.137
Short-term exposure, systemic, inhalative	26.67 mg/m ³	260 mg/m ³	0.103	

RCRs Worker – PROC 3

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure,	0.34 mg/kg bw/day	40 mg/kg	0.008	0.059

systemic, dermal		bw/day		
Long-term exposure, systemic, inhalative	13.33 mg/m ³	260 mg/m ³	0.051	
Short-term exposure, systemic, dermal	0.34 mg/kg bw/day	40 mg/kg bw/day	0.008	0.213
Short-term exposure, systemic, inhalative	53.33 mg/m ³	260 mg/m ³	0.205	

RCRs Worker – PROC 4

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, dermal	6.86 mg/kg bw/day	40 mg/kg bw/day	0.171	0.222
Long-term exposure, systemic, inhalative	13.33 mg/m ³	260 mg/m ³	0.051	
Short-term exposure, systemic, dermal	6.86 mg/kg bw/day	40 mg/kg bw/day	0.171	0.376
Short-term exposure, systemic, inhalative	53.33 mg/m ³	260 mg/m ³	0.205	

RCRs Worker – PROC 7

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, inhalative	141.1 mg/m ³	260 mg/m ³	0.542	-
Short-term exposure, systemic, inhalative	141.1 mg/m ³	260 mg/m ³	0.542	-

RCRs Worker – PROC 8a

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, dermal	13.71 mg/kg bw/day	40 mg/kg bw/day	0.343	0.471
Long-term exposure, systemic, inhalative	33.33 mg/m ³	260 mg/m ³	0.128	
Short-term exposure, systemic, dermal	13.71 mg/kg bw/day	40 mg/kg bw/day	0.343	0.599
Short-term exposure, systemic, inhalative	66.67 mg/m ³	260 mg/m ³	0.256	

RCRs Worker – PROC 8b

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, dermal	6.86 mg/kg bw/day	40 mg/kg bw/day	0.171	0.194
Long-term exposure, systemic, inhalative	6.00 mg/m ³	260 mg/m ³	0.023	
Short-term exposure, systemic, dermal	6.86 mg/kg bw/day	40 mg/kg bw/day	0.171	0.217
Short-term exposure, systemic, inhalative	12.00 mg/m ³	260 mg/m ³	0.046	

RCRs Worker – PROC 10

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, dermal	21.94 mg/kg bw/day	40 mg/kg bw/day	0.549	0.652
Long-term exposure, systemic, inhalative	26.67 mg/m ³	260 mg/m ³	0.103	
Short-term exposure, systemic, dermal	21.94 mg/kg bw/day	40 mg/kg bw/day	0.549	0.754
Short-term exposure, systemic, inhalative	53.33 mg/m ³	260 mg/m ³	0.205	

RCRs Worker – PROC 13

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, dermal	13.71 mg/kg bw/day	40 mg/kg bw/day	0.343	0.471
Long-term exposure, systemic, inhalative	33.33 mg/m ³	260 mg/m ³	0.128	
Short-term exposure, systemic, dermal	13.71 mg/kg bw/day	40 mg/kg bw/day	0.343	0.600
Short-term exposure, systemic, inhalative	66.67 mg/m ³	260 mg/m ³	0.256	

Exposure Scenario 7

1. Title			
Free short title	Professional use in cleaning agents		
Systematic title based on use descriptor	ERC 8a and 8d; PROC 1, 2, 3, 4, 8a, 8b, 10, 11, 13; SU 3, 8, 9 and 10		
Processes, tasks activities covered	Covers the use as a component of cleaning products including pouring/unloading from drums or containers; and exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping automated and by hand).		
Exposure assessment methodology	Tool used: ECETOC TRA workers (v2.0) modified ¹ and Stoffenmanagerv3.5/RISKOFDERMv2.1 (only PROC 11)		
2. Operational conditions and risk management measures			

2.1 Control of workers exposure for PROC 1, 2, 3, and 4			
Frequency and duration of use			
Duration of exposure	> 4	Hours/day	Relevant for PROC 1, 2 and 3
	1 - 4	Hour/day	Relevant for PROC 4
Frequency of exposure	≤ 240	Days/year	
Product characteristics			
Physical state of the product	liquid		
Concentration of substance in product	100	%	
Vapour pressure of substance	169.27	hPa	
Amounts used			
			Not relevant in ECETOC TRA
Human factors not influenced by risk management			
Exposed body parts dermal	Palm of one hands (240 cm ²)		Relevant for PROC 1 and 3
	Palm of both hands (480 cm ²)		Relevant for PROC 2 and 4
Other given operational conditions affecting workers exposure			
Domain	Industrial		
Inside/outside	Inside		
Technical conditions and measures at process level (source) to prevent release			
None			
Conditions and measures to control dispersion from source towards the worker			

Local exhaust ventilation required	No		Relevant for PROC 1
	Yes		Effectiveness: 80% Relevant for PROC 2, 3 and 4
Organisational measures to prevent /limit releases, dispersion and exposure			
			Not relevant in ECETOC TRA
Conditions and measures related to personal protection, hygiene and health evaluation			
Respiratory protection required	No		
2.2 Control of workers exposure for PROC 8a and 8b			
Frequency and duration of use			
Duration of exposure	> 4	Hours/day	
Frequency of exposure	≤ 240	Days/year	
Product characteristics (including package design affecting exposure)			
Physical state of the product	liquid		
Concentration of substance in product	Max. 5	%	
Vapour pressure of substance	169.27	hPa	
Amounts used			
			Not relevant in ECETOC TRA
Human factors not influenced by risk management			
Exposed body parts dermal	Palm of both hands (480 cm ²)		Relevant for PROC 8b
	Both hands (960 cm ²)		Relevant for PROC 8a
Other given operational conditions affecting workers exposure			
Domain	Professional		
Inside/outside	Inside		
Technical conditions and measures at process level (source) to prevent release			
Conditions and measures to control dispersion from source towards the worker			
Local exhaust ventilation required	No		
Organisational measures to prevent /limit releases, dispersion and exposure			
			Not relevant in ECETOC TRA
Conditions and measures related to personal protection, hygiene and health evaluation			
Respiratory protection required	No		
2.3 Control of workers exposure for PROC 10			
Frequency and duration of use			

Duration of exposure	> 4	Hours/day	
Frequency of exposure	≤ 240	Days/year	
Product characteristics (including package design affecting exposure)			
Physical state of the product	liquid		
Concentration of substance in product	Max. 5	%	
Vapour pressure of substance	169.27	hPa	
Amounts used			
			Not relevant in ECETOC TRA
Human factors not influenced by risk management			
Exposed body parts dermal	Both hands (960 cm ²)		
Other given operational conditions affecting workers exposure			
Inside/outside	Inside		
Technical conditions and measures at process level (source) to prevent release			
Conditions and measures to control dispersion from source towards the worker			
Local exhaust ventilation required	No		
Organisational measures to prevent /limit releases, dispersion and exposure			
			Not relevant in ECETOC TRA
Respiratory protection required	No		
2.4 Control of workers exposure for PROC 11			
Frequency and duration of use			
Duration of exposure (per shift)	200	mins/day	Value taken from Riskofderm; not relevant in the Stoffenmanager
Frequency of exposure	4-5	Days/week	Value taken from Stoffenmanager
Product characteristics (including package design affecting exposure)			
Physical state of the product	liquid		
Concentration of substance in product	Max. 3	%	
Vapour pressure of substance	169.27	hPa	
Amounts used			
Application rate of product	5	L/min	
Human factors not influenced by risk management			
Exposed body parts dermal	Both hands (820 cm ²)		
Other given operational conditions affecting workers exposure			
Inside/outside	Inside		
Room volume	100 - 1000	m ³	

Technical conditions and measures at process level (source) to prevent release			
Segregation	Worker is not within one meter of the source		Use of a long spray boom is necessary
Conditions and measures to control dispersion from source towards the worker			
Spraying process	Level or downward		
Direction of airflow that comes from the source	Away from the worker		
Distance of worker from the source	More than one meter		
Organisational measures to prevent /limit releases, dispersion and exposure			
Work area regularly cleaned	No		
Equipment regularly inspected and well cleaned	No		
Conditions and measures related to personal protection, hygiene and health evaluation			
Respiratory protection required	No		
Use of suitable gloves	Yes		Effectiveness: 90%
2.5 Control of workers exposure for PROC 13			
Frequency and duration of use			
Duration of exposure	> 4	Hours/day	
Frequency of exposure	≤ 240	Days/year	
Product characteristics (including package design affecting exposure)			
Physical state of the product	liquid		

Concentration of substance in product	100	%	
Vapour pressure of substance	169.27	hPa	
Amounts used			
			Not relevant in ECETOC TRA
Human factors not influenced by risk management			
Exposed body parts dermal	Palm of Both hands (480 cm ²)		
Other given operational conditions affecting workers exposure			
Inside/outside	Inside		
Technical conditions and measures at process level (source) to prevent release			
Conditions and measures to control dispersion from source towards the worker			
Local exhaust ventilation required	Yes		Effectiveness: 80%
Organisational measures to prevent /limit releases, dispersion and exposure			
			Not relevant in ECETOC TRA
Conditions and measures related to personal protection, hygiene and health evaluation			
Respiratory protection required	No		

¹ LEV: The LEV exposure modifying factors for dermal exposure implemented in the ECETOC TRA v2.0 are not considered
Preparation: concentration of substance is considered following a linear approach; this applies for inhalative and dermal exposure values for liquids and solids
RCR combined: RCR combined is calculated following the recommendation in the ECHA guidance document "Guidance on information requirements and chemical safety assessment – Part E: Risk characterization"

Exposure Estimation

Estimated exposure for workers – PROC 1

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	0.34	mg/kg bw/d	
Long-term exposure, systemic , inhalative	0.13	mg/m ³	
Short-term exposure, systemic, dermal	0.34	mg/kg bw/d	

Short-term exposure, systemic, inhalative	0.53	mg/m ³	See general remarks
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Estimated exposure for workers – PROC 2

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	1.37	mg/kg bw/d	
Long-term exposure, systemic , inhalative	13.33	mg/m ³	
Short-term exposure, systemic, dermal	1.37	mg/kg bw/d	
Short-term exposure, systemic, inhalative	53.33	mg/m ³	See general remarks

Estimated exposure for workers – PROC 3

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	0.34	mg/kg bw/d	
Long-term exposure, systemic , inhalative	26.67	mg/m ³	
Short-term exposure, systemic, dermal	0.34	mg/kg bw/d	
Short-term exposure, systemic, inhalative	106.67	mg/m ³	See general remarks

Estimated exposure for workers – PROC 4

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	6.86	mg/kg bw/d	

Long-term exposure, systemic , inhalative	40.00	mg/m ³	
Short-term exposure, systemic, dermal	6.86	mg/kg bw/d	
Short-term exposure, systemic, inhalative	160.00	mg/m ³	See general remarks

Estimated exposure for workers – PROC 8a

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	0.68	mg/kg bw/d	
Long-term exposure, systemic , inhalative	33.33	mg/m ³	
Short-term exposure, systemic, dermal	0.68	mg/kg bw/d	
Short-term exposure, systemic, inhalative	66.67	mg/m ³	See general remarks

Estimated exposure for workers – PROC 8b

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	0.34	mg/kg bw/d	
Long-term exposure, systemic , inhalative	16.67	mg/m ³	
Short-term exposure, systemic, dermal	0.34	mg/kg bw/d	
Short-term exposure, systemic, inhalative	33.34	mg/m ³	See general remarks

Estimated exposure for workers – PROC 10

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	1.37	mg/kg bw/d	
Long-term exposure, systemic , inhalative	33.33	mg/m ³	
Short-term exposure, systemic, dermal	21.94	mg/kg bw/d	
Short-term exposure, systemic, inhalative	66.67	mg/m ³	See general remarks

Estimated exposure for workers – PROC 11

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	7.24	mg/kg bw/d	
Long-term exposure, systemic , inhalative	134.1	mg/m ³	75 th percentile
Short-term exposure, systemic, dermal	7.24	mg/kg bw/d	
Short-term exposure, systemic, inhalative	134.1	mg/m ³	75 th percentile

Estimated exposure for workers – PROC 13

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	13.71	mg/kg bw/d	

Long-term exposure, systemic , inhalative	66.67	mg/m ³	
Short-term exposure, systemic, dermal	13.71	mg/kg bw/d	
Short-term exposure, systemic, inhalative	133.33	mg/m ³	See general remarks

Risk Characterisation

Workers

RCRs Worker – PROC 1

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, dermal	0.34 mg/kg bw/day	40 mg/kg bw/day	0.008	0.009
Long-term exposure, systemic, inhalative	0.13 mg/m ³	260 mg/m ³	0.0005	
Short-term exposure, systemic, dermal	0.34 mg/kg bw/day	40 mg/kg bw/day	0.008	0.010
Short-term exposure, systemic, inhalative	0.53 mg/m ³	260 mg/m ³	0.002	

RCRs Worker – PROC 2

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, dermal	1.37 mg/kg bw/day	40 mg/kg bw/day	0.034	0.086
Long-term exposure, systemic, inhalative	13.33 mg/m ³	260 mg/m ³	0.51	
Short-term exposure, systemic, dermal	1.37 mg/kg bw/day	40 mg/kg bw/day	0.034	0.239
Short-term exposure, systemic, inhalative	53.33 mg/m ³	260 mg/m ³	0.205	

RCRs Worker – PROC 3

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
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Long-term exposure, systemic, dermal	0.34 mg/kg bw/day	40 mg/kg bw/day	0.0008	0.111
Long-term exposure, systemic, inhalative	26.67 mg/m ³	260 mg/m ³	0.103	
Short-term exposure, systemic, dermal	0.34 mg/kg bw/day	40 mg/kg bw/day	0.0008	0.419
Short-term exposure, systemic, inhalative	106.67 mg/m ³	260 mg/m ³	0.410	

RCRs Worker – PROC 4

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, dermal	6.86 mg/kg bw/day	40 mg/kg bw/day	0.171	0.325
Long-term exposure, systemic, inhalative	40.00 mg/m ³	260 mg/m ³	0.154	
Short-term exposure, systemic, dermal	6.86 mg/kg bw/day	40 mg/kg bw/day	0.171	0.786
Short-term exposure, systemic, inhalative	160.00 mg/m ³	260 mg/m ³	0.615	

RCRs Worker – PROC 8a

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, dermal	0.68 mg/kg bw/day	40 mg/kg bw/day	0.017	0.145
Long-term exposure, systemic, inhalative	33.33 mg/m ³	260 mg/m ³	0.128	
Short-term exposure, systemic, dermal	0.68 mg/kg bw/day	40 mg/kg bw/day	0.017	0.273
Short-term exposure, systemic, inhalative	66.67 mg/m ³	260 mg/m ³	0.256	

RCRs Worker – PROC 8b

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, dermal	0.34 mg/kg bw/day	40 mg/kg bw/day	0.008	0.073
Long-term exposure, systemic, inhalative	16.67 mg/m ³	260 mg/m ³	0.064	

systemic, inhalative				
Short-term exposure, systemic, dermal	0349 mg/kg bw/day	40 mg/kg bw/day	0.008	0.137
Short-term exposure, systemic, inhalative	33.33 mg/m ³	260 mg/m ³	0.128	

RCRs Worker – PROC 10

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, dermal	1.37 mg/kg bw/day	40 mg/kg bw/day	0.034	0.162
Long-term exposure, systemic, inhalative	33.33 mg/m ³	260 mg/m ³	0.128	
Short-term exposure, systemic, dermal	1.37 mg/kg bw/day	40 mg/kg bw/day	0.034	0.290
Short-term exposure, systemic, inhalative	66.67 mg/m ³	260 mg/m ³	0.256	

RCRs Worker – PROC 11

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, dermal	7.24 mg/kg bw/day	40 mg/kg bw/day	0.181	0.697
Long-term exposure, systemic, inhalative	134.1 mg/m ³	260 mg/m ³	0.516	
Short-term exposure, systemic, dermal	7.24 mg/kg bw/day	40 mg/kg bw/day	0.181	0.697
Short-term exposure, systemic, inhalative	134.1 mg/m ³	260 mg/m ³	0.516	

RCRs Worker – PROC 13

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, dermal	13.71 mg/kg bw/day	40 mg/kg bw/day	0.343	0.600
Long-term exposure, systemic, inhalative	66.67 mg/m ³	260 mg/m ³	0.256	
Short-term exposure, systemic, dermal	13.71 mg/kg bw/day	40 mg/kg bw/day	0.343	0.856

Short-term exposure,
systemic, inhalative 133.33 mg/m³ 260 mg/m³ 0.513

Exposure Scenario 8

1. Title			
Free short title	Use as a laboratory reagent in industrial settings		
Systematic title based on use descriptor	ERC 4, PROC 10 and 15, SU 3		
Processes, tasks activities covered	Use of the substance within laboratory settings, including material transfers and equipment cleaning		
Exposure assessment methodology	Tool used: ECETOC TRA workers (v2.0) modified ¹		
2. Operational conditions and risk management measures			
2.1 Control of workers exposure for PROC 10			
Frequency and duration of use			
Duration of exposure	> 4	Hours/day	
Frequency of exposure	≤ 240	Days/year	
Product characteristics (including package design affecting exposure)			
Physical state of the product	liquid		
Concentration of substance in product	80	%	
Vapour pressure of substance	169.27	hPa	
Amounts used			
			Not relevant in ECETOC TRA
Human factors not influenced by risk management			
Exposed body parts dermal	Both hands (960 cm ²)		
Other given operational conditions affecting workers exposure			
Domain	Industrial		
Inside/Outside	Inside		
Technical conditions and measures at process level (source) to prevent release			
Conditions and measures to control dispersion from source towards the worker			
Local exhaust ventilation required	Yes		Effectiveness: 90%
Organisational measures to prevent /limit releases, dispersion and exposure			
			Not relevant in ECETOC TRA
Conditions and measures related to personal protection, hygiene and health evaluation			
Respiratory protection required	No		
2.2 Control of workers exposure for PROC 15			

Frequency and duration of use			
Duration of exposure	> 4	Hours/day	
Frequency of exposure	≤ 240	Days/year	

Physical state of the product	liquid		
Concentration of substance in product	100	%	
Vapour pressure of substance	169.27	hPa	
Amounts used			
			Not relevant in ECETOC TRA
Human factors not influenced by risk management			
Exposed body parts dermal	Palm of one hand (240cm ²)		
Other given operational conditions affecting workers exposure			
Domain	Industrial		
Inside/outside	Inside		
Technical conditions and measures at process level (source) to prevent release			
Conditions and measures to control dispersion from source towards the worker			
Local exhaust ventilation required	Yes		Effectiveness: 90%
Organisational measures to prevent /limit releases, dispersion and exposure			
			Not relevant in ECETOC TRA
Conditions and measures related to personal protection, hygiene and health evaluation			
Respiratory protection required	No		

- ¹ LEV: The LEV exposure modifying factors for dermal exposure implemented in the ECETOC TRA v2.0 are not considered
- Preparation: concentration of substance is considered following a linear approach; this applies for inhalative and dermal exposure values for liquids and solids
- RCR combined: RCR combined is calculated following the recommendation in the ECHA guidance document "Guidance on information requirements and chemical safety assessment – Part E: Risk characterization"

Exposure Estimation

Estimated exposure for workers – PROC 10

Route of exposure	Concentrations		Justification
	Value	Unit	

Long-term exposure, systemic, dermal	21.94	mg/kg bw/d	
Long-term exposure, systemic , inhalative	26.67	mg/m ³	
Short-term exposure, systemic, dermal	21.94	mg/kg bw/d	
Short-term exposure, systemic, inhalative	53.34	mg/m ³	See general remarks

Estimated exposure for workers – PROC 15

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	0.34	mg/kg bw/d	
Long-term exposure, systemic , inhalative	6.67	mg/m ³	
Short-term exposure, systemic, dermal	0.34	mg/kg bw/d	
Short-term exposure, systemic, inhalative	13.33	mg/m ³	See general remarks

Risk Characterisation

Workers

RCRs Worker – PROC 10

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, dermal	21.94 mg/kg bw/day	40 mg/kg bw/day	0.549	0.652
Long-term exposure, systemic, inhalative	26.67 mg/m ³	260 mg/m ³	0.103	
Short-term exposure, systemic, dermal	21.94 mg/kg bw/day	40 mg/kg bw/day	0.549	0.754

Short-term exposure,
systemic, inhalative 53.33 mg/m³ 260 mg/m³ 0.205

RCRs Worker – PROC 15

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, dermal	0.34 mg/kg bw/day	40 mg/kg bw/day	0.009	0.035
Long-term exposure, systemic, inhalative	6.67 mg/m ³	260 mg/m ³	0.026	
Short-term exposure, systemic, dermal	0.34 mg/kg bw/day	40 mg/kg bw/day	0.009	0.060
Short-term exposure, systemic, inhalative	13.33 mg/m ³	260 mg/m ³	0.051	

Exposure Scenario 9

1. Title			
Free short title	Use as a laboratory reagent in professional settings		
Systematic title based on use descriptor	ERC 8a, PROC 10 and 15, SU 22		
Processes, tasks activities covered	Use of small quantities within laboratory settings, including material transfers and equipment cleaning		
Exposure assessment methodology	Tool used: ECETOC TRA workers (v2.0) modified ¹		
2. Operational conditions and risk management measures			
2.1 Control of workers exposure for PROC 10			
Frequency and duration of use			
Duration of exposure	> 4	Hours/day	
Frequency of exposure	≤ 240	Days/year	
Product characteristics (including package design affecting exposure)			
Physical state of the product	liquid		
Concentration of substance in product	Max. 5	%	
Vapour pressure of substance	169.27	hPa	
Amounts used			
			Not relevant in ECETOC

			TRA
Human factors not influenced by risk management			
Exposed body parts dermal	Both hands (960 cm ²)		
Other given operational conditions affecting workers exposure			
Domain	Professional		
Inside/Outside	Inside		
Technical conditions and measures at process level (source) to prevent release			
Conditions and measures to control dispersion from source towards the worker			
Local exhaust ventilation required	No		
Organisational measures to prevent /limit releases, dispersion and exposure			
			Not relevant in ECETOC TRA
Conditions and measures related to personal protection, hygiene and health evaluation			
Respiratory protection required	No		
2.2 Control of workers exposure for PROC 15			
Frequency and duration of use			
Duration of exposure	> 4	Hours/day	
Frequency of exposure	≤ 240	Days/year	
Product characteristics (including package design affecting exposure)			
Physical state of the product	liquid		
Concentration of substance in product	100	%	
Vapour pressure of substance	169.27	hPa	
Amounts used			
			Not relevant in ECETOC TRA
Human factors not influenced by risk management			
Exposed body parts dermal	Palm of one hand (240cm ²)		
Other given operational conditions affecting workers exposure			
Domain	Professional		
Inside/outside	Inside		
Technical conditions and measures at process level (source) to prevent release			
Conditions and measures to control dispersion from source towards the worker			
Local exhaust ventilation required	Yes		Effectiveness: 80% (value refers to the “professional” scenario)

Respiratory protection required	No		
LEV:	The LEV exposure modifying factors for dermal exposure implemented in the ECETOC TRA v2.0 are not considered		
Preparation:	concentration of substance is considered following a linear approach; this applies for inhalative and dermal exposure values for liquids and solids		
RCR combined:	RCR combined is calculated following the recommendation in the ECHA guidance document “Guidance on information requirements and chemical safety assessment – Part E: Risk characterization”		

Exposure Estimation

Estimated exposure for workers – PROC 10

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	1.37	mg/kg bw/d	
Long-term exposure, systemic , inhalative	33.33	mg/m ³	
Short-term exposure, systemic, dermal	1.37	mg/kg bw/d	
Short-term exposure, systemic, inhalative	66.67	mg/m ³	See general remarks

Estimated exposure for workers – PROC 15

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	0.34	mg/kg bw/d	
Long-term exposure, systemic , inhalative	13.33	mg/m ³	
Short-term exposure, systemic, dermal	0.34	mg/kg bw/d	
Short-term exposure, systemic, inhalative	26.67	mg/m ³	See general remarks

Risk Characterisation

Workers

RCRs Worker – PROC 10

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, dermal	1.37 mg/kg bw/day	40 mg/kg bw/day	0.034	0.162
Long-term exposure, systemic, inhalative	33.33 mg/m ³	260 mg/m ³	0.128	
Short-term exposure, systemic, dermal	1.37 mg/kg bw/day	40 mg/kg bw/day	0.034	0.290
Short-term exposure, systemic, inhalative	66.67 mg/m ³	260 mg/m ³	0.256	

RCRs Worker – PROC 15

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, dermal	0.34 mg/kg bw/day	40 mg/kg bw/day	0.009	0.060
Long-term exposure, systemic, inhalative	13.33 mg/m ³	260 mg/m ³	0.051	
Short-term exposure, systemic, dermal	0.34 mg/kg bw/day	40 mg/kg bw/day	0.009	0.112
Short-term exposure, systemic, inhalative	26.67 mg/m ³	260 mg/m ³	0.103	

Exposure Scenario 10

1. Title			
Free short title	Industrial use as wastewater treatment chemical		
Systematic title based on use descriptor	ERC 9b; PROC 2; SU 3		
Processes, tasks activities covered	-		
Exposure assessment methodology	Tool used: ECETOC TRA workers (v2.0) modified ¹		
2. Operational conditions and risk management measures			
2.1 Control of workers exposure for PROC 1, 2, 3, and 4			
Frequency and duration of use			
Duration of exposure	> 4	Hours/day	
Frequency of exposure	≤ 240	Days/year	
Product characteristics			
Physical state of the product	liquid		
Concentration of substance in product	100	%	
Vapour pressure of substance	169.27	hPa	
Amounts used			
			Not relevant in ECETOC TRA
Human factors not influenced by risk management			
	Palm of both hands (480 cm ²)		
Other given operational conditions affecting workers exposure			
Domain	Industrial		
Inside/outside	Inside		
Technical conditions and measures at process level (source) to prevent release			
None			
Conditions and measures to control dispersion from source towards the worker			
Local exhaust ventilation required	Yes		Effectiveness: 90%
Organisational measures to prevent /limit releases, dispersion and exposure			
			Not relevant in ECETOC TRA
Conditions and measures related to personal protection, hygiene and health evaluation			
Respiratory protection required	No		

Exposure Estimation

Estimated exposure for workers – PROC 2

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	1.37	mg/kg bw/d	
Long-term exposure, systemic, inhalative	6.67	mg/m ³	
Short-term exposure, systemic, dermal	1.37	mg/kg bw/d	
Short-term exposure, systemic, inhalative	26.67	mg/m ³	See general remarks

Risk Characterisation

Workers

RCRs Worker – PROC 2

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, dermal	1.37 mg/kg bw/day	40 mg/kg bw/day	0.034	0.060
Long-term exposure, systemic, inhalative	6.67 mg/m ³	260 mg/m ³	0.026	
Short-term exposure, systemic, dermal	1.37 mg/kg bw/day	40 mg/kg bw/day	0.034	0.137
Short-term exposure, systemic, inhalative	26.67 mg/m ³	260 mg/m ³	0.103	

Exposure Scenario 11

1. Title	
Free short title	Professional use in oilfield drilling and production operations

Systematic title based on use descriptor	ERC 9b; PROC 4, 5, 8a, 8b; SU 22		
Processes, tasks activities covered	Oil field well drilling and production operations (including drilling muds and well cleaning) including material transfers, on-site formulation, well head operations, shaker room activities and related maintenance.		
Exposure assessment methodology	Tool used: ECETOC TRA workers (v2.0) modified ¹		
2. Operational conditions and risk management measures			
2.1 Control of workers exposure for PROC 4			
Frequency and duration of use			
	1 - 4	Hour/day	
Frequency of exposure	≤ 240	Days/year	
Product characteristics			
Physical state of the product	liquid		
Concentration of substance in product	100	%	
Vapour pressure of substance	169.27	hPa	
Amounts used			
			Not relevant in ECETOC

			TRA
Human factors not influenced by risk management			
	Palm of both hands (480 cm ²)		
Other given operational conditions affecting workers exposure			
Domain	Industrial		
Inside/outside	Inside		
Technical conditions and measures at process level (source) to prevent release			
None			
Conditions and measures to control dispersion from source towards the worker			
Local exhaust ventilation required	Yes		Effectiveness: 80%
Organisational measures to prevent /limit releases, dispersion and exposure			
			Not relevant in ECETOC TRA
Conditions and measures related to personal protection, hygiene and health evaluation			
Respiratory protection required	No		
2.2 Control of workers exposure for PROC 5			
Frequency and duration of use			
Duration of exposure	> 4	Hours/day	
Frequency of exposure	≤ 240	Days/year	
Product characteristics			
Physical state of the product	liquid		

Concentration of substance in product	Max. 5	%	
Vapour pressure of substance	169.27	hPa	
Amounts used			
			Not relevant in ECETOC TRA
Human factors not influenced by risk management			
Exposed body parts dermal	Palm of both hands (480 cm ²)		
Other given operational conditions affecting workers exposure			
Domain	Professional		
Inside/outside	Inside		
Technical conditions and measures at process level (source) to prevent release			
			None
Conditions and measures to control dispersion from source towards the worker			
Local exhaust ventilation required	No		
Organisational measures to prevent /limit releases, dispersion and exposure			
			Not relevant in ECETOC TRA
Conditions and measures related to personal protection, hygiene and health evaluation			

Respiratory protection required	No		
2.3 Control of workers exposure for PROC 8a and 8b			
Frequency and duration of use			
Duration of exposure	> 4	Hours/day	
Frequency of exposure	≤ 240	Days/year	
Product characteristics (including package design affecting exposure)			
Physical state of the product	liquid		
Concentration of substance in product	Max. 5	%	
Vapour pressure of substance	169.27	hPa	
Amounts used			
			Not relevant in ECETOC TRA
Human factors not influenced by risk management			
Exposed body parts dermal	Palm of both hands (480 cm ²)		Relevant for PROC 8b
	Both hands (960 cm ²)		Relevant for PROC 8a
Other given operational conditions affecting workers exposure			
Domain	Professional		
Inside/outside	Inside		
Technical conditions and measures at process level (source) to prevent release			
Conditions and measures to control dispersion from source towards the worker			
Local exhaust ventilation required	No		
Organisational measures to prevent /limit releases, dispersion and exposure			
			Not relevant in ECETOC TRA
Conditions and measures related to personal protection, hygiene and health evaluation			
Respiratory protection required	No		

- ¹ LEV: The LEV exposure modifying factors for dermal exposure implemented in the ECETOC TRA v2.0 are not considered
- Preparation: Concentration of substance is considered following a linear approach; this applies for inhalative and dermal exposure values for liquids and solids
- RCR combined: RCR combined is calculated following the recommendation in the ECHA guidance document “Guidance on information requirements and chemical safety assessment – Part E: Risk characterization”

Exposure Estimation

Estimated exposure for workers – PROC 4

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	6.86	mg/kg bw/d	
Long-term exposure, systemic, inhalative	40.00	mg/m ³	
Short-term exposure, systemic, dermal	6.86	mg/kg bw/d	
Short-term exposure, systemic, inhalative	160.00	mg/m ³	See general remarks

Estimated exposure for workers – PROC 5

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	0.68	mg/kg bw/d	
Long-term exposure, systemic, inhalative	33.33	mg/m ³	
Short-term exposure, systemic, dermal	0.68	mg/kg bw/d	
Short-term exposure, systemic, inhalative	66.67	mg/m ³	See general remarks

Estimated exposure for workers – PROC 8a

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	0.68	mg/kg bw/d	

Long-term exposure, systemic , inhalative	33.33	mg/m ³	
Short-term exposure, systemic, dermal	0.68	mg/kg bw/d	
Short-term exposure, systemic, inhalative	66.67	mg/m ³	See general remarks

Estimated exposure for workers – PROC 8b

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	0.34	mg/kg bw/d	
Long-term exposure, systemic , inhalative	16.67	mg/m ³	
Short-term exposure, systemic, dermal	0.34	mg/kg bw/d	
Short-term exposure, systemic, inhalative	33.34	mg/m ³	See general remarks

Risk Characterisation

Workers

RCRs Worker – PROC 4

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, dermal	6.86 mg/kg bw/day	40 mg/kg bw/day	0.171	0.325
Long-term exposure, systemic, inhalative	40.00 mg/m ³	260 mg/m ³	0.154	
Short-term exposure, systemic, dermal	6.86 mg/kg bw/day	40 mg/kg bw/day	0.171	0.786
Short-term exposure, systemic, inhalative	160.00 mg/m ³	260 mg/m ³	0.615	

RCRs Worker – PROC 5

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, dermal	0.68 mg/kg bw/day	40 mg/kg bw/day	0.017	0.145
Long-term exposure, systemic, inhalative	33.33 mg/m ³	260 mg/m ³	0.128	
Short-term exposure, systemic, dermal	0.68 mg/kg bw/day	40 mg/kg bw/day	0.017	0.273
Short-term exposure, systemic, inhalative	66.67 mg/m ³	260 mg/m ³	0.256	

RCRs Worker – PROC 8a

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, dermal	0.68 mg/kg bw/day	40 mg/kg bw/day	0.017	0.145
Long-term exposure, systemic, inhalative	33.33 mg/m ³	260 mg/m ³	0.128	
Short-term exposure, systemic, dermal	0.68 mg/kg bw/day	40 mg/kg bw/day	0.017	0.274
Short-term exposure, systemic, inhalative	66.67 mg/m ³	260 mg/m ³	0.256	

RCRs Worker – PROC 8b

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, dermal	0.34 mg/kg bw/day	40 mg/kg bw/day	0.008	0.072
Long-term exposure, systemic, inhalative	16.67 mg/m ³	260 mg/m ³	0.064	
Short-term exposure, systemic, dermal	0.34 mg/kg bw/day	40 mg/kg bw/day	0.008	0.136
Short-term exposure, systemic, inhalative	33.33 mg/m ³	260 mg/m ³	0.128	

Exposure Scenario 12

Exposure Scenario

General remarks

For the use of cleaning agents (or de-icers) containing methanol the use of ready-to-use products for which no dilution and mixing steps are necessary was assumed. Furthermore, it is assumed that cleaning agents containing methanol are only sold within cleaners intended for cleaning/de-icing small surfaces (e.g. windshields) and thus small packaging sizes are assumed.

1. Title	
Free short title	Consumer use of cleaning agents (e.g. windshield cleaner) and de-icers (liquid non-spray products)
Systematic title based on use descriptor	ERC 8a and 8d; PC 4 and 35, SU 21
Processes, tasks activities covered	Application of cleaning agents and de-icers as liquid non-spray products.
Assessment Method	Tool used: ConsExpo (v4.1) Default exposure scenario with modifications ¹ : Cleaning and washing agents/All-purpose cleaners/Liquid cleaner/Application (Inhalation evaporation model: mode of release – evaporation; Dermal direct product contact: dermal loading – instant application)

2. Operational conditions and risk management measures			
2.1 Control of consumers exposure			
Frequency and duration of use			
Frequency of exposure	104	1/year	ConsExpo default value
Duration of exposure	240	mins	ConsExpo default value
Duration of application	20	mins	ConsExpo default value
Product characteristic (including package design affecting exposure)			
Physical state of the product	Liquid		
Concentration of substance in product	Max. 2.5	%	
Vapour pressure of substance	169	hPa	
Mol weight matrix	18	g/mol	ConsExpo default value
Mass transfer rate	0.413	m/min	Approximation according to Thibodaux's method

Amounts used			
Applied amount	100	g/event	Corresponding applied amount dermal is assumed to be 5 g/event ¹
Human factors not influenced by risk management			
Exposed body parts dermal	1900	cm ²	Refers to both hands and forearms; ConsExpo default value
Inhalation rate	24.1	l/min	Light exercise; ConsExpo default value
Other given operational conditions affecting consumers exposure			
Room volume	58	m ³	ConsExpo default value
Ventilation rate	0.5	1/hr	ConsExpo default value
Release area	5	m ²	
Conditions and measures related to information and behavioural advice to consumers			
			None
Conditions and measures related to personal protection and hygiene			
			None

* The ConsExpo default database was modified regarding the following parameters:

- Inhalation model: applied amount of 100g (instead of 400g)
Release area of 5m² (instead of 10m²)
- Dermal model: applied amount of 5 g (instead of 19g)

According to the Cleaning products Fact Sheet it is assumed that 1% of the product gives dermal exposure unless it is stated otherwise. The ConsExpo defaults give a dermal exposure of 19g for a applied amount of 400g of the product which corresponds to approx. 5%. Thus, for a product amount of 100g, 5g of the product are assumed to give dermal exposure.

Exposure Estimation

Estimated exposure for consumers

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	1.92	mg/kg bw/d	
Long-term exposure, systemic, inhalative	3.05	mg/m ³	
Long-term exposure, systemic, oral	NA	mg/kg bw/d	This route of exposure is regarded to be not relevant.
Short-term exposure, systemic, dermal	1.92	mg/kg bw/d	
Short-term exposure, systemic, inhalative	18.30	mg/m ³	
Short-term exposure, systemic, oral	NA	mg/kg bw/d	This route of exposure is regarded to be not relevant.

NA = Not applicable

Risk Characterisation

Consumer

RCRs Consumer

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, dermal	1.92 mg/kg bw/day	8 mg/kg bw/day	0.24	0.301
Long-term exposure, systemic, inhalative	3.05 mg/m ³	50 mg/m ³	0.061	
Short-term exposure, systemic, dermal	1.92 mg/kg bw/day	8 mg/kg bw/day	0.24	0.606
Short-term exposure, systemic, inhalative	18.30 mg/m ³	50 mg/m ³	0.366	

Exposure Scenario 13

1. Title			
Free short title	Consumer use of cleaning agents (e.g. windshield cleaner) and de-icers (liquid spray products)		
Systematic title based on use descriptor	ERC 8a and 8d, PC 4 and 35, SU 21		
Processes, tasks activities covered	Application of cleaning agents and de-icers as liquid spray products		
Assessment Method	Tool used: ConsExpo (v4.1) Default exposure scenario: Cleaning and washing agents/All-purpose cleaners/Spray cleaner/Application spraying and application cleaning		
2. Operational conditions and risk management measures			
2.1 Control of consumers exposure			
Frequency and duration of use			
Frequency of exposure	365	1/year	ConsExpo default value

Duration of exposure	60	mins	ConsExpo default value
Duration of application	10	mins	ConsExpo default value
Spray duration	0.41	mins	Only relevant within the “Application spraying” model; ConsExpo default value
Product characteristic (including package design affecting exposure)			
Physical state of the product	Liquid		
Concentration of substance in product	Max. 5.0	%	
Vapour pressure of substance	169	hPa	
Mol weight matrix	22	g/mol	Only relevant within the “Application cleaning” model; ConsExpo default value
Mass transfer rate	0.413	m/min	Approximation according to Thibodauxs’s method; Only relevant within the “Application cleaning” model
Amounts used			

Applied amount	16.2	g/event	Corresponding applied amount dermal is assumed to be 0.16 g/event; ConsExpo default value
Human factors not influenced by risk management			
Exposed body parts dermal; Application spraying	960	cm ²	Refers to both hands ; ConsExpo default value
Exposed body parts dermal; Application Cleaning	215	cm ²	Refers to palm of one hand; ConsExpo default value
Inhalation rate	24.1	l/min	Light exercise; ConsExpo default value
Other given operational conditions affecting consumers exposure			
Room volume	15	m ³	ConsExpo default value

			value
Ventilation rate	2.5	1/hr	ConsExpo default value
Release area	1.71	m ²	Only relevant within the "Application cleaning" model; ConsExpo default value
Conditions and measures related to information and behavioural advice to consumers			
Spraying away from exposed person			
Conditions and measures related to personal protection and hygiene			
			None

Exposure Estimation

Estimated exposure for consumers

Route of exposure	Concentrations		Justification
	Value	Unit	

Long-term exposure, systemic, dermal (Application spraying)	0.0145		
Long-term exposure, systemic, dermal (Application cleaning)	0.0123	mg/kg bw/d	
Long-term exposure, systemic, dermal (Application spraying and cleaning)	0.0268		
Long-term exposure, systemic , inhalative (Application spraying)	0.000011		
Long-term exposure, systemic , inhalative (Application cleaning)	0.822	mg/m ³	
Long-term exposure, systemic , inhalative (Application spraying and cleaning)	0.822		
Long-term exposure, systemic, oral (Application spraying)	0.000576	mg/kg bw/d	
Long-term exposure, systemic, oral (Application cleaning)	NA		
Long-term exposure, systemic, oral (Application spraying and cleaning)	0.000576		
Short-term exposure, systemic, dermal (Application spraying)	0.0145		
Short-term exposure, systemic, dermal (Application cleaning)	0.0123	mg/kg bw/d	
Short-term exposure, systemic, dermal (Application spraying and cleaning)	0.0268		

Short-term exposure, systemic, inhalative (Application spraying)	0.000263		
Short-term exposure, systemic, inhalative (Application cleaning)	19.7	mg/m ³	
Short-term exposure, systemic, inhalative (Application spraying and cleaning)	19.7		
Short-term exposure, systemic, oral (Application spraying)	0.000576		
Short-term exposure, systemic, oral (Application cleaning)	NA	mg/kg bw/d	
Short-term exposure, systemic, oral (Application spraying and cleaning)	0.000576		

NA = Not applicable

Risk Characterisation

Consumer

RCRs Consumer

Exposure	Exposure estimate ¹	DNEL	RCR per route ¹	RCR combined ¹
Long-term exposure, systemic, dermal	0.03 mg/kg bw/day	8 mg/kg bw/day	0.003	
Long-term exposure, systemic, inhalative	0.82 mg/m ³	50 mg/m ³	0.016	0.019
Long-term exposure, systemic, oral	0.00058 mg/kg bw/day	8 mg/kg bw/day	0.00007	
Short-term exposure, systemic, dermal	0.03 mg/kg bw/day	8 mg/kg bw/day	0.003	
Short-term exposure, systemic, inhalative	19.70 mg/m ³	50 mg/m ³	0.394	0.397
Short-term exposure, systemic, oral	0.00058	8 mg/kg bw/day	0.00007	

¹ The exposure estimate, RCR per route and RCR combined refers to the total exposure value resulting from the two sub-scenarios „Application spraying“ and „Application cleaning“.

Exposure Scenario 14a

General remarks

For the consumer use of methanol as a fuel/within fuels it is assumed that the product design is in a way to exclude unintended skin contact. E.g. Filling/loading has to be possible without using a funnel and without spillage.

Description of exposure scenario

1. Title			
Free short title	Consumer use of fuels indoors (Domestic/hobby use e.g in model engines, fuel cells, fondue sets)		
Systematic title based on use descriptor	PC 13, SU 21		
Processes, tasks activities covered	-		
Assessment Method	Tool used: ConsExpo (v4.1) (Inhalation model: Exposure to vapour – evaporation; Dermal model: Direct dermal contact with product; instant application; Dermal uptake model: Fraction)		
2. Operational conditions and risk management measures			
2.1 Control of consumers exposure			
Frequency and duration of use			
Frequency of exposure	2	1/week	
Duration of exposure	10	mins	
Duration of application	10	mins	
Product characteristic (including package design affecting exposure)			
Physical state of the product	Liquid		
Concentration of substance in product	80	%	According to the “Household products database” of the U.S. Department of Health and Human Services
Vapour pressure of substance	169	hPa	
Mol weight of matrix	100	g/mol	Estimated on the basis of available commercial products (ingredients: e.g. nitroethane, nitromethane, castor oil)
Mass transfer rate	0.413	m/min	Approximation according to Thibodaux’s method
Release area	2	cm ²	

Amounts used			
Applied amount (inhalative)	800	g/event	
Human factors not influenced by risk management			

Inhalation rate	34.7	m ³ /day	Light exercise
Other given operational conditions affecting consumers exposure			
Room volume	20	m ³	
Ventilation rate	0.5	1/hr	
Release area (inhalation)	2	cm ²	
Conditions and measures related to information and behavioural advice to consumers			
None			
Conditions and measures related to personal protection and hygiene			
None			

Additional good practice advice
Avoid skin contact. Use suitable chemical resistant gloves. In case of skin contact wash exposed skin areas immediately. Keep container tightly closed.

Exposure Estimation

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	NA		Assuming intended use of the product significant skin contact only occurs in case of accidents. Thus the dermal route of exposure is regarded to be not relevant.
Long-term exposure, systemic, inhalative	0.287	mg/m ³	
Long-term exposure, systemic, oral	NA	mg/kg bw/d	This route of exposure is regarded to be not relevant.
Short-term exposure, systemic, dermal	NA		Assuming intended use of the product significant skin contact only occurs in case of accidents. Thus the dermal route of exposure is regarded to be not relevant.

Short-term exposure, systemic, inhalative	41.3	mg/m ³	
Short-term exposure, systemic, oral	NA	mg/kg bw/d	This route of exposure is regarded to be not relevant.

NA = Not applicable

Risk Characterisation

Consumer

RCRs Consumer

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, inhalative	0.287 mg/m ³	50 mg/m ³	0.006	NA
Short-term exposure, systemic, inhalative	41.3 mg/m ³	50 mg/m ³	0.826	NA

NA – not applicable

Exposure Scenario 14b

General remarks

Although the consumer use of methanol as/in fuels is assessed within this exposure scenario process category 16 was calculated with the ECETOC TRA worker tool (v2.0) to assess the activity. Process category 16 is considered to cover the activity of filling up vehicles in an appropriate manner, whereas a calculation with the ECETOC TRA consumer tool ConsExpo was deemed to be unsuitable for an assessment.

1. Title			
Free short title	Consumer use of fuels outdoors		
Systematic title based on use descriptor	PROC 16, SU 21		
Processes, tasks activities covered	Filling up cars and other vehicles at petrol stations		
Assessment Method	Tool used: ECETOC TRA workers (v2.0) modified ¹		
2. Operational conditions and risk management measures			
2.4 Control of workers exposure for PROC 16			
Frequency and duration of use			
Duration of exposure	< 15 mins	hours/day	
Frequency of exposure	≤ 240	Days/year	
Product characteristics (including package design affecting exposure)			
Physical state of the product	liquid		
Concentration of substance in product	100	%	
Vapour pressure of substance	169.27	hPa	
Amounts used			
			Not relevant in ECETOC TRA
Human factors not influenced by risk management			
Exposed body parts dermal	Palm of one hand (240cm ²)		
Other given operational conditions affecting workers exposure			
Domain	Professional		
Inside/outside	Outside		
Technical conditions and measures at process level (source) to prevent release			
Conditions and measures to control dispersion from source towards the worker			
Organisational measures to prevent /limit releases, dispersion and exposure			
			Not relevant in ECETOC TRA
Conditions and measures related to personal protection, hygiene and health evaluation			

Respiratory protection required	No		
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Exposure Estimation

Estimated exposure for workers – PROC 16

Route of exposure	Concentrations		Justification
	Value	Unit	
Long-term exposure, systemic, dermal	0.34	mg/kg bw/d	
Long-term exposure, systemic , inhalative	4.67	mg/m ³	
Short-term exposure, systemic, dermal	0.34	mg/kg bw/d	
Short-term exposure, systemic, inhalative	9.34	mg/m ³	

Risk Characterisation

Consumers

RCRs Worker – PROC 16

Exposure	Exposure estimate	DNEL	RCR per route	RCR combined
Long-term exposure, systemic, dermal	0.34 mg/kg bw/day	8 mg/kg bw/day	0.043	0.136
Long-term exposure, systemic, inhalative	4.67 mg/m ³	50 mg/m ³	0.093	
Short-term exposure, systemic, dermal	0.34 mg/kg bw/day	8 mg/kg bw/day	0.043	0.230
Short-term exposure, systemic, inhalative	9.34 mg/m ³	50 mg/m ³	0.187	