KARTA CHARAKTERYSTYKI

zgodnie z rozporządzeniem (WE) nr 1907/2006 Parlamentu Europejskiego w obowiązującym brzmieniu

MMB (3-Methoxy-3-Methyl-1-Butanol)

Data utworzenia	04.02.2021	Numer wersji	4.0
Data aktualizacji	14.11.2025		

SEKCJA 1: Identyfikacja substancji/mieszaniny i identyfikacja przedsiębiorstwa

1.1. Identyfikator produktu — MMB (3-Methoxy-3-Methyl-1-Butanol)

Substancja / mieszanina	substancja
Nazwa chemiczna	3-Metoksy-3-metylobutan-1-ol
Nr CAS	56539-66-3
Numer WE (EINECS)	260-252-4
Numer rejestracji	01-2119976333-33-0000

1.2. Istotne zidentyfikowane zastosowania substancji lub mieszaniny oraz zastosowania odradzane

Zamierzone zastosowania substancji

Surowiec.
Środek czyszczący.
Do powłok.
Do odświeżaczy powietrza, które są wyrobami konsumenckimi.
Zastosowania przemysłowe.

Odradzane zastosowania substancji

Nie wolno używać produktu w inny sposób niż te, które zostały podane w sekcji 1.
Załącznikiem karty charakterystyki jest scenariusz narażenia.

1.3. Dane dotyczące dostawcy karty charakterystyki

Dystrybutor

Nazwa lub nazwa handlowa	PROMEX DISTRIBUTION SP. Z O.O.
Adres	Piastowska 44, 82-500 Kwidzyn Polska
NIP	PL5811972490
Telefon	+48 602 653 000
E-mail	G.WARELICH@PROMEXD.PL
Adres www strony	WWW.SOYWAX.PL

Osoba odpowiedzialna za kartę charakterystyki

Nazwa	PROMEX DISTRIBUTION SP. O.O.
E-mail	G.WARELICH@PROMEXD.PL

1.4. Numer telefonu alarmowego

Europejski numer alarmowy: 112

SEKCJA 2: Identyfikacja zagrożeń

2.1. Klasyfikacja substancji lub mieszaniny

Klasyfikacja substancji zgodnie z rozporządzeniem (WE) nr 1272/2008

Substancję zaklasyfikowano jako stwarzająca zagrożenie.

Eye Irrit. 2, H319

Najpoważniejsze negatywne skutki dla zdrowia ludzkiego i środowiska

Działa drażniąco na oczy.

2.2. Elementy oznakowania

Piktogram określający rodzaj zagrożenia

Hasło ostrzegawcze

Uwaga

Zwroty wskazujące rodzaj zagrożenia

H319	Działa drażniąco na oczy.

Zwroty wskazujące środki ostrożności

P264	Dokładnie umyć ręce i dotknięte części ciała po użyciu.
P280	Stosować ochronę oczu.

P337+P313 W przypadku utrzymywania się działania drażniącego na oczy: Zasięgnąć porady/zgłosić się pod opiekę lekarza.

2.3. Inne zagrożenia

Substancja nie ma właściwości powodujących zaburzenia endokrynologiczne zgodnie z kryteriami określonymi w rozporządzeniu delegowanym Komisji (UE) 2017/2100 lub rozporządzeniu Komisji (UE) 2018/605. Substancja nie spełnia kryteriów dla substancji PBT lub vPvB zgodnie z Aneksem XIII, Rozporządzenia (WE) nr 1907/2006 Parlamentu Europejskiego w obowiązującym brzmieniu. Nie zawiera składników PMT/vPvM.
Pary mogą tworzyć z powietrzem mieszaninę wybuchową.

SEKCJA 3: Skład/informacja o składnikach

3.1. Substancje

Charakterystyka chemiczna

Substancja podana poniżej.

Numery identyfikacyjne	Nazwa substancji	Zawartość w % masy	Klasyfikacja zgodnie z rozporządzeniem (WE) nr 1272/2008	Uwaga
	głównego składnika substancji			
CAS: 56539-66-3 WE: 260-252-4 Numer rejestracji: 01-2119976333-33-0000	3-Metoksy-3-metylobutan-1-ol	≥98	Eye Irrit. 2, H319	

Pełny tekst wszystkich klasyfikacji i standardowych zwrotów wskazujących rodzaj zagrożenia znajduje się w sekcji 16.

SEKCJA 4: Środki pierwszej pomocy

4.1. Opis środków pierwszej pomocy

Dbać o własne bezpieczeństwo. Jeżeli wystąpią dolegliwości zdrowotne lub w razie wątpliwości należy powiadomić lekarza i udzielić mu informacji z niniejszej karty charakterystyki.

W przypadku dostania się do dróg oddechowych

Natychmiast przerwać narażenie, przenieść poszkodowanego na świeże powietrze.

W przypadku kontaktu ze skórą

Odłożyć zabrudzoną odzież. Omywać dotknięte miejsce dużą ilością - o ile to możliwe - letniej wody. Jeżeli nie doszło do poranienia skóry, można użyć mydła, wody mydlanej lub szamponu. Zapewnić opiekę lekarza, jeżeli utrzymuje się podrażnienie skóry.

W przypadku dostania się do oczu

Natychmiast wypłukać oczy strumieniem wody, rozchylić powieki (nawet z użyciem siły); jeżeli poszkodowany nosi soczewki kontaktowe, natychmiast je wyjąć. Wypłukiwać co najmniej przez 10 minut. Zapewnić lekarską i - o ile to możliwe - specjalistyczną opiekę.

W przypadku połknięcia

Wypłukać jamę ustną wodą i wypić 0,2-0,5 l wody. W przypadku osoby z problemami zdrowotnymi zapewnić opiekę lekarską.

4.2. Najważniejsze ostre i opóźnione objawy oraz skutki narażenia

W przypadku dostania się do dróg oddechowych

Nie są przewidywane.

W przypadku kontaktu ze skórą

Nie są przewidywane.

W przypadku dostania się do oczu

Działa drażniąco na oczy.

W przypadku połknięcia

Podrażnienie, nudności.

4.3. Wskazania dotyczące wszelkiej natychmiastowej pomocy lekarskiej i szczególnego postępowania z poszkodowanym

Leczenie symptomatyczne.

SEKCJA 5: Postępowanie w przypadku pożaru

5.1. Środki gaśnicze

Odpowiednie środki gaśnicze

Pianka odporna na alkohol, dwutlenek węgla, proszek, woda - rozproszony strumień, mgiełka wodna.

Niewłaściwe środki gaśnicze

Woda – pełny strumień.

5.2. Szczególne zagrożenia związane z substancją lub mieszaniną

W trakcie pożaru może dochodzić do powstania tlenku i dwutlenku węgla oraz innych toksycznych gazów. Wdychanie niebezpiecznych produktów spalania (pirolizy) może prowadzić do poważnego uszkodzenia zdrowia.

5.3. Informacje dla straży pożarnej

Autonomiczny aparat oddechowy z ubraniem chroniącym przed chemikaliami tylko w okolicznościach, gdy prawdopodobny jest kontakt osobisty (bliski). Użyj izolacyjnego aparatu tlenowego oraz kombinezonu ochronnego na całe ciało. Nie pozwól, aby skażone środki gaśnicze przedostały się do kanalizacji, wód powierzchniowych i gruntowych.

SEKCJA 6: Postępowanie w przypadku niezamierzonego uwolnienia do środowiska

6.1. Indywidualne środki ostrożności, wyposażenie ochronne i procedury w sytuacjach awaryjnych

Używać roboczych środków ochrony osobistej. Postępować zgodnie ze wskazówkami podanymi w sekcjach 7 i 8. Nie dopuścić do kontaktu z oczami i skórą.

6.2. Środki ostrożności w zakresie ochrony środowiska

Zapobiegać kontaminacji gleby i przedostaniu się do wód powierzchniowych lub gruntowych.

6.3. Metody i materiały zapobiegające rozprzestrzenianiu się skażenia i służące do usuwania skażenia

Przykryć rozlany produkt odpowiednim (niepalnym) materiałem absorbującym (piasek, krzemionka, gleba oraz inne odpowiednie materiały absorpcyjne, itp.), zgromadzić w dobrze zamkniętych naczyniach i usunąć zgodnie z sekcją 13. W przypadku wycieku większej ilości produktu należy poinformować strażaków oraz inne kompetentne władze. Po usunięciu preparatu umyć skażone miejsce dużą ilością wody. Nie używaj rozpuszczalników.

6.4. Odniesienia do innych sekcji

Patrz sekcja 7., 8. i 13.

SEKCJA 7: Postępowanie z substancjami i mieszaninami oraz ich magazynowanie

7.1. Środki ostrożności dotyczące bezpiecznego postępowania

Nie dopuścić do kontaktu z oczami i skórą. Dokładnie umyć ręce i dotknięte części ciała po użyciu. Używać roboczych środków ochrony osobistej zgodnie z sekcją 8. Przestrzegać obowiązujących przepisów prawa dotyczących bezpieczeństwa i ochrony zdrowia.

7.2. Warunki bezpiecznego magazynowania, w tym informacje dotyczące wszelkich wzajemnych niezgodności

Przechowuj w szczelnie zamkniętych opakowaniach w przeznaczonych do tego celu chłodnych, suchych i dobrze wietrzonych miejscach.

Nie przechowywać z produktami następujących typów: silne utleniacze, środki wybuchowe, gazy.

7.3. Szczególne zastosowanie(-a) końcowe

Nie ma dalszych zaleceń.

SEKCJA 8: Kontrola narażenia/środki ochrony indywidualnej

8.1. Parametry dotyczące kontroli

nie ma

Inne dane odnośnie wartości granicznych

Pracownicy
Wdychanie
Długotrwałe - skutki układowe 18 mg/m³
Pracownicy
Kontakt ze skórą
Długotrwałe - skutki układowe 6,25 mg/kg wagi ciała/dzień
Konsumenci
Wdychanie
Długotrwałe - skutki układowe 4,4 mg/m³
Konsumenci
Kontakt ze skórą
Długotrwałe - skutki układowe 3,1 mg/kg wagi ciała/dzień
Konsumenci
Połknięcie
Długotrwałe - skutki układowe 2,5 mg/kg wagi ciała/dzień

8.2. Kontrola narażenia

W trakcie pracy nie wolno jeść, pić lub palić. Po pracy i przed przerwą na jedzenie i wypoczynek należy dokładnie umyć ręce wodą i mydłem.

Ochrona oczu lub twarzy

Okulary ochronne.

Ochrona skóry

Ochrona rąk: Rękawice ochronne odporne na działanie produktu. W przypadku zabrudzenia skóry należy ją dokładnie obmyć.

Ochrona dróg oddechowych

Nie jest potrzebna.

Zagrożenie cieplne

Brak danych.

Kontrola narażenia środowiska

Proszę przestrzegać zwykłych zabiegów dotyczących ochrony środowiska pracy, patrz punkt 6.2.

Pozostałe dane

Załącznikiem karty charakterystyki jest scenariusz narażenia.

SEKCJA 9: Właściwości fizyczne i chemiczne

9.1. Informacje na temat podstawowych właściwości fizycznych i chemicznych

Stan skupienia	ciekłe
Kolor	bezbarwny
Zapach	lekki, eterowy
Temperatura topnienia/krzepnięcia	<-50 °C
Temperatura wrzenia lub początkowa temperatura wrzenia i zakres temperatur wrzenia	173 °C
Palność materiałów	brak danych
Dolna i górna granica wybuchowości	
dolna	1,2 %
górna	13,1 %
Temperatura zapłonu	71 °C
Temperatura samozapłonu	395 °C
Temperatura rozkładu	brak danych
pH	brak danych
Lepkość kinematyczna	brak danych
Rozpuszczalność w wodzie	całkowicie mieszalny

Rozpuszczalność w tłuszczach	brak danych
Współczynnik podziału n-oktanol/woda (wartość współczynnika log)	0,18 (25 °C)
Prężność pary	0,47 hPa przy 20 °C
Gęstość lub gęstość względna	
gęstość	0,91 g/cm³ przy 20 °C
Względna gęstość pary	brak danych
Charakterystyka cząsteczek	brak danych

9.2. Inne informacje

Szybkość parowania	brak danych
Wygląd	ciecz
Właściwości utleniające	substancja nie jest utleniająca
Właściwości wybuchowe	Produkt nie ma właściwości wybuchowych.
Gęstość par	4,1

Lepkość dynamiczna: 12,5 mPa.s (20 °C)

SEKCJA 10: Stabilność i reaktywność

10.1. Reaktywność

Substancja jest niepalna.

10.2. Stabilność chemiczna

W normalnych warunkach produkt jest stabilny.

10.3. Możliwość występowania niebezpiecznych reakcji

Pary mogą tworzyć mieszaninę wybuchową z powietrzem. Może reagować z silnymi utleniaczami.

10.4. Warunki, których należy unikać

W przypadku zwykłego sposobu stosowania produkt jest stabilny, nie dochodzi do rozkładu. Chroń przed płomieniami, iskrami, przegrzaniem i przed mrozem.

10.5. Materiały niezgodne

Środki utleniające.

10.6. Niebezpieczne produkty rozkładu

W przypadku zwykłego sposobu używania nie powstają. W wysokich temperaturach i w trakcie pożaru powstają niebezpieczne produkty, np. tlenek węgla i dwutlenek węgla.

SEKCJA 11: Informacje toksykologiczne

11.1. Informacje na temat klas zagrożenia zdefiniowanych w rozporządzeniu (WE) nr 1272/2008

Dla substancji nie ma dostępnych żadnych danych toksykologicznych.

Toksyczność ostra

Brak danych dla substancji. W oparciu o dostępne dane, kryteria klasyfikacji nie są spełnione.

Działanie żrące/drażniące na skórę

Brak danych dla substancji. W oparciu o dostępne dane, kryteria klasyfikacji nie są spełnione.

Poważne uszkodzenie oczu/działanie drażniące na oczy

Działa drażniąco na oczy.

Działanie uczulające na drogi oddechowe lub skórę

Brak danych dla substancji. W oparciu o dostępne dane, kryteria klasyfikacji nie są spełnione.

Działanie mutagenne na komórki rozrodcze

Brak danych dla substancji. W oparciu o dostępne dane, kryteria klasyfikacji nie są spełnione.

Działanie rakotwórcze

Brak danych dla substancji. W oparciu o dostępne dane, kryteria klasyfikacji nie są spełnione.

Szkodliwe działanie na rozrodczość
Brak danych dla substancji. W oparciu o dostępne dane, kryteria klasyfikacji nie są spełnione.

Działanie toksyczne na narządy docelowe – narażenie jednorazowe
Brak danych dla substancji. W oparciu o dostępne dane, kryteria klasyfikacji nie są spełnione.

Działanie toksyczne na narządy docelowe – narażenie powtarzane
Brak danych dla substancji. W oparciu o dostępne dane, kryteria klasyfikacji nie są spełnione.

Zagrożenie spowodowane aspiracją
Brak danych dla substancji. W oparciu o dostępne dane, kryteria klasyfikacji nie są spełnione.

Pozostałe dane
LD50 doustnie (Szczur): 4400 mg/kg
Metoda: Dyrektywa ds. testów 401 OECD
LD50 doskórnie (Szczur): > 2000 mg/kg
Ocena: Ta substancja nie charakteryzuje się ostrą toksycznością drogą skórną

11.2. Informacje o innych zagrożeniach

Właściwości zaburzające funkcjonowanie układu hormonalnego
W oparciu o dostępne dane, kryteria klasyfikacji nie są spełnione. Nie zawiera składników, które mogą powodować zaburzenia hormonalne u człowieka.

Inne informacje
brak danych

SEKCJA 12: Informacje ekologiczne

12.1. Toksyczność

Brak danych dla substancji. W oparciu o dostępne dane, kryteria klasyfikacji nie są spełnione.

Pozostałe dane
Toksyczność dla ryb:
LC50 (Oryzias latipes (Ryżanka japońska)): > 100 mg/l
Czas ekspozycji: 96 h
Metoda: Dyrektywa ds. testów 203 OECD

EC50 (Daphnia magna (rozwielitka)): > 1000 mg/l
Czas ekspozycji: 48 h
Metoda: Dyrektywa ds. testów 202 OECD

NOEC (Pseudokirchneriella subcapitata (algi zielone)): 1000 mg/l
Czas ekspozycji: 72 h
Metoda: Dyrektywa ds. testów 201 OECD

ErC50 (Pseudokirchneriella subcapitata (algi zielone)): > 1000 mg/l
Czas ekspozycji: 72 h
Metoda: Dyrektywa ds. testów 201 OECD

EC50 mikroorganizmy: > 1000 mg/l
Czas ekspozycji: 3 h
Metoda: Wytyczne OECD 209 w sprawie prób

NOEC: 100 mg/l
Czas ekspozycji: 21 d
Gatunek: Dafnia magna (rozwielitka)
Metoda: Wytyczne OECD 211 w sprawie prób

12.2. Trwałość i zdolność do rozkładu

Ulega biodegradacji.
Metoda: Dyrektywa ds. testów 302C OECD
Biodegradacja: 100 %
Czas ekspozycji: 28 d
Metoda: Dyrektywa ds. testów 310 OECD
Biodegradacja: 78,9 %
Czas ekspozycji: 28 d

Biodegradacja

MMB (3-Methoxy-3-Methyl-1-Butanol)				
Parametr	Wartość	Czas trwania ekspozycji	Środowiska	Wynik
				Ulega łatwo biodegradacji

12.3. Zdolność do bioakumulacji

Współczynnik podziału: n-oktanol/woda: log Pow: 0,18

12.4. Mobilność w glebie

W oparciu o dostępne dane, kryteria klasyfikacji nie są spełnione. Nie zawiera składników PMT/vPvM.

12.5. Wyniki oceny właściwości PBT i vPvB

W oparciu o dostępne dane, kryteria klasyfikacji nie są spełnione. Nie zawiera składników PBT/vPvB.

12.6. Właściwości zaburzające funkcjonowanie układu hormonalnego

W oparciu o dostępne dane, kryteria klasyfikacji nie są spełnione. Nie zawiera składników, które mogą powodować zaburzenia hormonalne w środowisku.

12.7. Inne szkodliwe skutki działania

Brak danych.

SEKCJA 13: Postępowanie z odpadami

13.1. Metody unieszkodliwiania odpadów

Niebezpieczeństwo skażenia środowiska, postępować zgodnie z Ustawą Dz.U. 2013 r., poz. 21 o odpadach oraz przepisami wykonawczymi dotyczącymi utylizacji odpadów. Niewykorzystany produkt i zabrudzone opakowanie przechowuj w zamkniętych naczyniach do zbierania odpadów i przekaż do utylizacji osobie upoważnionej do utylizowania odpadów (wyspecjalizowanej firmie), która posiada uprawnienia do prowadzenia takiej działalności. Nie wylewać niewykorzystanego produktu do kanalizacji. Nie wolno usuwać razem z odpadami komunalnymi. Puste opakowania można energetycznie wykorzystać w spalarni odpadów lub gromadzić na składowisku o odpowiedniej klasyfikacji. Idealnie wyczyszczone opakowania można przekazać do recyklingu.

Regulacje prawne w zakresie gospodarki odpadami

Obwieszczenia Marszałka Sejmu Rzeczypospolitej Polskiej z dnia 7 lipca 2023 r. w sprawie ogłoszenia jednolitego tekstu ustawy o odpadach (Dz.U. 2023 poz. 1587) z późniejszymi zmianami. Ustawa z dnia 14 grudnia 2012 r. o odpadach (Dz. U. z dnia 8 stycznia 2013 r., poz. 21) wraz z późn. zm. Dyrektywa Parlamentu Europejskiego i Rady 2008/98/WE z dnia 19 listopada 2008 r. w sprawie odpadów. Ustawa z dnia 13 czerwca 2013 r. o gospodarce opakowaniami i odpadami opakowaniowymi (t.j. Dz. U. z 2023 r. poz. 1658 z późn. zm.) Rozporządzenie Ministra Klimatu z dnia 2 stycznia 2020 r. w sprawie katalogu odpadów (Dz.U. 2020 poz. 10).

SEKCJA 14: Informacje dotyczące transportu

14.1. Numer UN lub numer identyfikacyjny ID

nie podlega przepisom transportu

14.2. Prawidłowa nazwa przewozowa UN

nieistotne

14.3. Klasa(-y) zagrożenia w transporcie

nieistotne

14.4. Grupa pakowania

nieistotne

14.5. Zagrożenia dla środowiska

nieistotne

14.6. Szczególne środki ostrożności dla użytkowników

Odsyłacz w sekcjach 4 do 8.

14.7. Transport morski luzem zgodnie z instrumentami IMO

nieistotne

SEKCJA 15: Informacje dotyczące przepisów prawnych

15.1. Przepisy prawne dotyczące bezpieczeństwa, zdrowia i ochrony środowiska specyficzne dla substancji lub mieszaniny

Ustawa z dnia 19 sierpnia 2011 r. o przewozie towarów niebezpiecznych (t.j. Dz. U. 2024 poz. 643). Ustawa o zdrowiu publicznym. Obwieszczenie Marszałka Sejmu Rzeczypospolitej Polskiej z dnia 1 grudnia 2022 r. w sprawie ogłoszenia jednolitego tekstu ustawy - Prawo ochrony środowiska (Dz. U. 2024 poz. 54). Kartę charakterystyki sporządzono zgodnie z rozporządzeniem Komisji (UE) 2020/878 z dnia 18 czerwca 2020 r. zmieniającym załącznik II do rozporządzenia (WE) nr 1907/2006 Parlamentu Europejskiego i Rady w sprawie rejestracji, oceny, udzielania zezwoleń i stosowanych ograniczeń w zakresie chemikaliów (REACH). Rozporządzenie (WE) NR 1907/2006 Parlamentu Europejskiego i Rady z dnia 18 grudnia 2006 r. w sprawie rejestracji, oceny, udzielania zezwoleń i stosowanych ograniczeń w zakresie chemikaliów (REACH) i utworzenia Europejskiej Agencji Chemikaliów, zmieniające dyrektywę 1999/45/WE oraz uchylające rozporządzenie Rady (EWG) nr 793/93 i rozporządzenie Komisji (WE) nr 1488/94, jak również dyrektywę Rady 76/769/EWG i dyrektywy Komisji 91/155/EWG, 93/67/EWG, 93/105/WE i 2000/21/WE w obowiązującym brzmieniu. Rozporządzenie Parlamentu Europejskiego i Rady (WE) nr 1272/2008 w obowiązującym brzmieniu. Rozporządzenie Komisji (UE) 2020/878 z dnia 18 czerwca 2020 r. zmieniające załącznik II do rozporządzenia (WE) nr 1907/2006 Parlamentu Europejskiego i Rady w sprawie rejestracji, oceny, udzielania zezwoleń i stosowanych ograniczeń w zakresie chemikaliów (REACH). Rozporządzenie (WE) nr 649/2012 Parlamentu Europejskiego i Rady z dnia 4 lipca 2012 r. dotyczące wywozu i przywozu niebezpiecznych chemikaliów. Ustawa z dnia 25 lutego 2011 r. o substancjach chemicznych i ich mieszaninach (t.j. Dz. U. z 2022 r. poz. 1816). Ustawa z dnia 28 maja 2020 r. o zmianie ustawy o substancjach chemicznych i ich mieszaninach oraz niektórych innych ustaw (Dz.U. 2020 poz. 1337). Ustawa z dnia 23 stycznia 2020 r. o zmianie ustawy o odpadach oraz niektórych innych ustaw. (Dz. U. z dnia 23 stycznia 2020 r., poz. 150). Ustawa z dnia 13 lipca 2023 r. o zmianie ustawy o gospodarce opakowaniami i odpadami opakowaniowymi oraz niektórych innych ustaw (Dz.U. 2023 poz. 1852). Rozporządzenie Ministra Rodziny, Pracy i Polityki Społecznej z dnia 12 czerwca 2018 r. w sprawie najwyższych dopuszczalnych stężeń i natężeń czynników szkodliwych dla zdrowia w środowisku pracy (D

15.2. Ocena bezpieczeństwa chemicznego

Ocena Bezpieczeństwa Chemicznego została przeprowadzona.

SEKCJA 16: Inne informacje

Lista zwrotów określających zagrożenie zastosowanych w karcie charakterystyki

H319	Działa drażniąco na oczy.

Lista zwrotów określających środki ostrożności zastosowanych w karcie charakterystyki

P264	Dokładnie umyć ręce i dotknięte części ciała po użyciu.
P280	Stosować ochronę oczu.
P337+P313	W przypadku utrzymywania się działania drażniącego na oczy: Zasięgnąć porady/zgłosić się pod opiekę lekarza.

Dalsze informacje ważne z punktu widzenia bezpieczeństwa i ochrony ludzkiego zdrowia

Produkt nie może być – bez specjalnej zgody producenta/importera – wykorzystywany w innym celu, niż zostało podane w sekcji 1. Użytkownik jest odpowiedzialny za przestrzeganie wszystkich powiązanych przepisów w dziedzinie ochrony zdrowia.

Wyjaśnienie skrótów i akronimów stosowanych w karcie charakterystyki

ADR	Umowa dotycząca międzynarodowego przewozu drogowego towarów niebezpiecznych
BCF	Współczynnik biokoncentracji
CAS	Chemical Abstracts Service
CLP	Rozporządzenie (WE) nr 1272/2008 w sprawie klasyfikacji, oznakowania i pakowania substancji i mieszanin
EINECS	Europejski Wykaz Istniejących Substancji o Znaczeniu Komercyjnym
EmS	Procedury reagowania kryzysowego dla statków przewożących towary niebezpieczne
EuPCS	Europejski system klasyfikacji produktów
Eye Irrit.	Działanie drażniące na oczy
IATA	Międzynarodowe Zrzeszenie Przewoźników Lotniczych

IBC	Międzynarodowy kodeks budowy i wyposażenia statków przewożących niebezpieczne chemikalia luzem
ICAO	Organizacja Międzynarodowego Lotnictwa Cywilnego
IMDG	Międzynarodowy morski kodeks towarów niebezpiecznych
IMO	Międzynarodowa Organizacja Morska
INCI	Międzynarodowe Nazewnictwo Składników Kosmetycznych
ISO	Międzynarodowa Organizacja Normalizacyjna
IUPAC	Międzynarodowa Unia Chemii Czystej i Stosowanej
log Kow	Współczynnik podziału oktanol-woda
LZO	Lotne związki organiczne
NDS	Najwyższe dopuszczalne stężenie
NDSCh	Najwyższe dopuszczalne stężenie chwilowe
NDSP	Najwyższe dopuszczalne stężenie pułapowe
Numer UN (numer ONZ)	Czterocyfrowy numer rozpoznawczy materiału lub przedmiotu, pochodzący z „Przepisów modelowych ONZ"
OEL	Dopuszczalne wartości narażenia w miejscu pracy
PBT	Trwałą, wykazującą zdolność do bioakumulacji i toksyczną
PMT	Trwałą, mobilną i toksyczną
ppm	Części na milion
REACH	Rejestracja, ocena, udzielanie zezwoleń i stosowane ograniczenia w zakresie chemikaliów
RID	Regulamin międzynarodowego przewozu kolejami towarów niebezpiecznych
UE	Unia Europejska
UVCB	Substancje o nieznanym lub zmiennym składzie, złożone produkty reakcji lub materiały biologiczne
vPvB	Bardzo trwały i wykazujący bardzo dużą zdolność do bioakumulacji
vPvM	Bardzo trwałe i bardzo mobilne
WE	Kod identyfikacyjny dla każdej substancji podanej w EINECS

Wskazówki dotyczące szkoleń

Zapoznać pracowników z zalecanym sposobem stosowania, obowiązkowymi środkami ochronnymi, pierwszą pomocą oraz zabronionymi sposobami manipulowania z produktem.

Zalecane ograniczenia stosowania

brak danych

Informacje dotyczące źródeł danych wykorzystanych do ułożenia karty charakterystyki

Rozporządzenie Parlamentu Europejskiego i Rady (WE) nr 1907/2006 (REACH) w obowiązującym brzmieniu. Rozporządzenie Parlamentu Europejskiego i Rady (WE) nr 1272/2008 w obowiązującym brzmieniu. Dane producenta substancji/mieszaniny - dane z dokumentacji rejestracyjnej.

Dokonane zmiany (które informacje zostały dodane, usunięte lub zmodyfikowane)

Kartę charakterystyki opracowano na podstawie karty charakterystyki producenta (z dnia 24.10.2022 r.) i uaktualniono zgodnie z najnowszymi rozporządzeniami.
Zastępuje wersje z dnia 02.02.2024 r.

Pozostałe dane

Procedura klasyfikacji - metoda obliczeniowa.

Oświadczenie

Karta charakterystyki zawiera dane służące do zapewnienia bezpieczeństwa i ochrony zdrowia przy pracy oraz ochrony środowiska naturalnego. Podane dane odpowiadają obecnemu stanowi wiedzy i doświadczeń i są zgodne z obowiązującymi przepisami prawa. Nie mogą być uważane za gwarancję przydatności i użyteczności produktu na potrzeby konkretnego zastosowania.

EXPOSURE SCENARIO FOR COMMUNICATION

Substance Name: 3-Methoxy-3-methylbutanol_MMB (KRC)
EC Number: 260-252-4
CAS Number: 56539-66-3
Registration Number: 01-2119976333-33-0000
Date of Generation/Revision: 27/10/2025
Author:

Table of Contents

1. ES 1: Formulation, compounding and packing of preparations

1.1. Title section

Product category: Adhesives, Sealants (PC 1), Air care products (PC 3), Anti-Freeze and De-icing products (PC 4), Coatings and Paints, Thinners, paint removers (PC 9a), Ink and Toners (PC 18), Lubricants, Greases, Release Products (PC 24), Plant Protection Products (PC 27), Polishes and Wax Blends (PC 31), Washing and Cleaning Products (PC 35), Welding and soldering products, flux products (PC 38), Cosmetics, personal care products (PC 39)

Environment	
1: *Formulation, compounding and packing of preparations*	ERC 2
Worker	
2: *Closed continuous system*	PROC 1
3: *Closed process with sample taking*	PROC 2
4: *Closed batch process*	PROC 3
5: *Partly open batch process*	PROC 4
6: *Blending in open batch process*	PROC 5
7: *External Transfer Processes*	PROC 8a
8: *Internal Transfer Processes*	PROC 8b
9: *Filling of small containers*	PROC 9
10: *Formulation of pellets*	PROC 14
11: *Laboratory Use*	PROC 15

1.2. Conditions of use affecting exposure

1.2.1. Control of environmental exposure: *Formulation, compounding and packing of preparations* (ERC 2)

Amount used, frequency and duration of use (or from service life)
Daily amount per site <= 20 tonnes/day
Annual amount per site <= 500 tonnes/year
Conditions and measures related to biological sewage treatment plant
Municipal sewage treatment plant is assumed.
Assumed domestic sewage treatment plant flow >= 2E3 m3/day
Conditions and measures related to external treatment of waste (including article waste)
Dispose of waste product or used containers according to local regulations.
Other conditions affecting environmental exposure
Receiving surface water flow >= 1.8E4 m3/day

1.2.2. Control of worker exposure: *Closed continuous system* (PROC 1)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 8 h/day
Technical and organisational conditions and measures
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and

machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Other conditions affecting workers exposure
Assumes process temperature up to 40 °C
Indoor use

1.2.3. Control of worker exposure: *Closed process with sample taking* (PROC 2)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 8 h/day
Technical and organisational conditions and measures
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Assumes process temperature up to 40 °C
Indoor use

1.2.4. Control of worker exposure: *Closed batch process* (PROC 3)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 8 h/day
Technical and organisational conditions and measures
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Assumes process temperature up to 40 °C
Indoor use

1.2.5. Control of worker exposure: *Partly open batch process* (PROC 4)

Product (article) characteristics
Covers concentrations up to 100 %

Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 8 h/day
Technical and organisational conditions and measures
Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90%.
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

1.2.6. Control of worker exposure: *Blending in open batch process* (PROC 5)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 8 h/day
Technical and organisational conditions and measures
Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90%.
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

1.2.7. Control of worker exposure: *External Transfer Processes* (PROC 8a)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1 h/day
Technical and organisational conditions and measures
Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90%.
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.

Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

1.2.8. Control of worker exposure: *Internal Transfer Processes* (PROC 8b)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1 h/day
Technical and organisational conditions and measures
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

1.2.9. Control of worker exposure: *Filling of small containers* (PROC 9)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 8 h/day
Technical and organisational conditions and measures
Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90%.
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

1.2.10. Control of worker exposure: *Formulation of pellets* (PROC 14)

Product (article) characteristics

Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 8 h/day
Technical and organisational conditions and measures
Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90%.
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

1.2.11. Control of worker exposure: *Laboratory Use* (PROC 15)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 4 h/day
Technical and organisational conditions and measures
Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

1.3. Exposure estimation and reference to its source

1.3.1. Environmental release and exposure: *Formulation, compounding and packing of preparations* (ERC 2)

Release route	Release rate	Release estimation method
Water	400 kg/day	ERC
Air	500 kg/day	ERC
Soil	2 kg/day	ERC

Protection target	Exposure estimate	RCR
Man via environment - Inhalation	9.53E-3 mg/m³ (EUSES 2.1.2)	< 0.01

Protection target	Exposure estimate	RCR
(systemic effects)		
Man via environment - Oral	0.015 mg/kg bw/day (EUSES 2.1.2)	0.012
Man via environment - combined routes		0.013

1.3.2. Worker exposure: *Closed continuous system* (PROC 1)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.049 mg/m³ (TRA Workers 3.0)	< 0.01
Dermal, systemic, long term	0.034 mg/kg bw/day (TRA Workers 3.0)	< 0.01
Combined, systemic, long term		< 0.01

1.3.3. Worker exposure: *Closed process with sample taking* (PROC 2)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	4.924 mg/m³ (TRA Workers 3.0)	0.199
Dermal, systemic, long term	1.37 mg/kg bw/day (TRA Workers 3.0)	0.157
Combined, systemic, long term		0.356

1.3.4. Worker exposure: *Closed batch process* (PROC 3)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	14.77 mg/m³ (TRA Workers 3.0)	0.598
Dermal, systemic, long term	0.69 mg/kg bw/day (TRA Workers 3.0)	0.079
Combined, systemic, long term		0.677

1.3.5. Worker exposure: *Partly open batch process* (PROC 4)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	2.462 mg/m³ (TRA Workers 3.0)	0.1
Dermal, systemic, long term	0.686 mg/kg bw/day (TRA Workers 3.0)	0.078
Combined, systemic, long term		0.178

1.3.6. Worker exposure: *Blending in open batch process* (PROC 5)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	2.462 mg/m³ (TRA Workers 3.0)	0.1
Dermal, systemic, long term	1.371 mg/kg bw/day (TRA Workers 3.0)	0.157
Combined, systemic, long term		0.256

1.3.7. Worker exposure: *External Transfer Processes* (PROC 8a)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.985 mg/m³ (TRA Workers 3.0)	0.04
Dermal, systemic, long term	1.371 mg/kg bw/day (TRA Workers 3.0)	0.157
Combined, systemic, long term		0.197

1.3.8. Worker exposure: *Internal Transfer Processes* (PROC 8b)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	4.924 mg/m³ (TRA Workers 3.0)	0.199
Dermal, systemic, long term	2.742 mg/kg bw/day (TRA Workers 3.0)	0.313
Combined, systemic, long term		0.513

1.3.9. Worker exposure: *Filling of small containers* (PROC 9)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	2.462 mg/m³ (TRA Workers 3.0)	0.1
Dermal, systemic, long term	0.686 mg/kg bw/day (TRA Workers 3.0)	0.078
Combined, systemic, long term		0.178

1.3.10. Worker exposure: *Formulation of pellets* (PROC 14)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	2.462 mg/m³ (TRA Workers 3.0)	0.1
Dermal, systemic, long term	3.43 mg/kg bw/day (TRA Workers 3.0)	0.392
Combined, systemic, long term		0.492

1.3.11. Worker exposure: *Laboratory Use* (PROC 15)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	4.432 mg/m³ (TRA Workers 3.0)	0.179
Dermal, systemic, long term	0.068 mg/kg bw/day (TRA Workers 3.0)	< 0.01
Combined, systemic, long term		0.187

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

Guidance: Analogue adaptations may be possible among the determinants driving environmental exposure. Analogue adaptations may be possible among the determinants driving workers exposure.
Scaling tool: environmental exposure: Using EUSES software at https://ec.europa.eu/jrc/en/scientific-tool/european-union-system-evaluation-substances. workers exposure: See exposure modifiers in ECETOC TRAv3 at ECETOC-TR-114-ECETOC-TRA-v3-Background-rationale-for-the-improvements.pdf.

2. ES 2: Industrial cleaning - water and solvent based

2.1. Title section

Product category: Anti-Freeze and De-icing products (PC 4), Lubricants, Greases, Release Products (PC 24), Washing and Cleaning Products (PC 35), Welding and soldering products, flux products (PC 38)
Sector of use: Agriculture, forestry, fishery (SU 1), Mining (without offshore industries) (SU 2a), Offshore industries (SU 2b), Manufacture of food products (SU 4), Manufacture of textiles, leather, fur (SU 5), Manufacture of wood and wood products (SU 6a), Manufacture of pulp, paper and paper products (SU 6b), Printing and reproduction of recorded media (SU 7), Manufacture of bulk, large scale chemicals (including petroleum products) (SU 8), Manufacture of fine chemicals (SU 9), Manufacture of rubber products (SU 11), Manufacture of plastics products, including compounding and conversion (SU 12), Manufacture of other non-metallic mineral products, e.g. plasters, cement (SU 13), Manufacture of basic metals, including alloys (SU 14), Manufacture of fabricated metal products, except machinery and equipment (SU 15), Manufacture of computer, electronic and optical products, electrical equipment (SU 16), General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment. (SU 17), Manufacture of furniture (SU 18), Building and construction work (SU 19), Health services (SU 20), Electricity, steam, gas water supply and sewage treatment (SU 23), Scientific research and development (SU 24)

Environment		SPERC
1: *Industrial cleaning - water and solvent based*	ERC 4	*AISE 4.1.v2*
Worker		SWED
2: *Closed process with sample taking*	PROC 2	
3: *Partly open batch process*	PROC 4	
4: *Blending in open batch process*	PROC 5	
5: *Industrial spaying*	PROC 7	
6: *External Transfer Processes*	PROC 8a	
7: *Internal Transfer Processes*	PROC 8b	
8: *Roller Application or Brushing*	PROC 10	
9: *Article treatment by dipping*	PROC 13	

2.2. Conditions of use affecting exposure

2.2.1. Control of environmental exposure: *Industrial cleaning - water and solvent based* (ERC 4)

Amount used, frequency and duration of use (or from service life)
Daily amount per site <= 0.05 tonnes/day
Annual amount per site <= 11 tonnes/year
Technical and organisational conditions and measures
Maximize waste water reuse.
Product applied in aqueous process solution with negligible volatilization.
Conditions and measures related to biological sewage treatment plant
Assumed domestic sewage treatment plant flow >= 2E3 m3/day
Municipal sewage treatment plant is assumed.
Conditions and measures related to external treatment of waste (including article waste)
No waste from process
Other conditions affecting environmental exposure
Indoor use
Spent process fluid discharged to wastewater for subsequent treatment.
Spent process fluid discharged to wastewater for subsequent treatment.

2.2.2. Control of worker exposure: *Closed process with sample taking* (PROC 2)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 8 h/day
Technical and organisational conditions and measures
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

2.2.3. Control of worker exposure: *Partly open batch process* (PROC 4)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 8 h/day
Technical and organisational conditions and measures
Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90%.
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

2.2.4. Control of worker exposure: *Blending in open batch process* (PROC 5)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 8 h/day
Technical and organisational conditions and measures
Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90%.
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal

operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

2.2.5. Control of worker exposure: *Industrial spaying* (PROC 7)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 4 h/day
Technical and organisational conditions and measures
Provide enclosing hood with very high effectiveness (such as fume cupboard) or effective ventilation by spray booth according to EN 16985. Ensure effectiveness is at least 95%.
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

2.2.6. Control of worker exposure: *External Transfer Processes* (PROC 8a)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1 h/day
Technical and organisational conditions and measures
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body,

then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

2.2.7. Control of worker exposure: *Internal Transfer Processes* (PROC 8b)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1 h/day
Technical and organisational conditions and measures
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

2.2.8. Control of worker exposure: *Roller Application or Brushing* (PROC 10)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 8 h/day
Technical and organisational conditions and measures
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90%.
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification,

refer to section 8 of the SDS.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

2.2.9. Control of worker exposure: *Article treatment by dipping* (PROC 13)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 8 h/day
Technical and organisational conditions and measures
Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

2.3. Exposure estimation and reference to its source

2.3.1. Environmental release and exposure: *Industrial cleaning - water and solvent based* (ERC 4)

Release route	Release rate	Release estimation method
Water	50 kg/day	SPERC
Air	0 kg/day	SPERC
Soil	0 kg/day	SPERC

Protection target	Exposure estimate	RCR
Man via environment - Inhalation (systemic effects)	1.09E-5 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	6.63E-3 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

2.3.2. Worker exposure: *Closed process with sample taking* (PROC 2)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	4.924 mg/m³ (TRA Workers 3.0)	0.199

Route of exposure and type of effects	Exposure estimate	RCR
Dermal, systemic, long term	1.37 mg/kg bw/day (TRA Workers 3.0)	0.157
Combined, systemic, long term		0.356

2.3.3. Worker exposure: *Partly open batch process* (PROC 4)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	2.462 mg/m³ (TRA Workers 3.0)	0.1
Dermal, systemic, long term	0.686 mg/kg bw/day (TRA Workers 3.0)	0.078
Combined, systemic, long term		0.178

2.3.4. Worker exposure: *Blending in open batch process* (PROC 5)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	2.462 mg/m³ (TRA Workers 3.0)	0.1
Dermal, systemic, long term	1.371 mg/kg bw/day (TRA Workers 3.0)	0.157
Combined, systemic, long term		0.256

2.3.5. Worker exposure: *Industrial spaying* (PROC 7)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	14.77 mg/m³ (TRA Workers 3.0)	0.598
Dermal, systemic, long term	0.429 mg/kg bw/day (TRA Workers 3.0)	0.049
Combined, systemic, long term		0.647

2.3.6. Worker exposure: *External Transfer Processes* (PROC 8a)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	9.848 mg/m³ (TRA Workers 3.0)	0.399
Dermal, systemic, long term	2.742 mg/kg bw/day (TRA Workers 3.0)	0.313
Combined, systemic, long term		0.712

2.3.7. Worker exposure: *Internal Transfer Processes* (PROC 8b)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	4.924 mg/m³ (TRA Workers 3.0)	0.199
Dermal, systemic, long term	2.742 mg/kg bw/day (TRA Workers 3.0)	0.313
Combined, systemic, long term		0.513

2.3.8. Worker exposure: *Roller Application or Brushing* (PROC 10)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	3.447 mg/m³ (TRA Workers 3.0)	0.14
Dermal, systemic, long term	2.743 mg/kg bw/day (TRA Workers 3.0)	0.313
Combined, systemic, long term		0.453

2.3.9. Worker exposure: *Article treatment by dipping* (PROC 13)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	14.77 mg/m³ (TRA Workers 3.0)	0.598
Dermal, systemic, long term	0.686 mg/kg bw/day (TRA Workers 3.0)	0.078
Combined, systemic, long term		0.676

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

Guidance: Analogue adaptations may be possible among the determinants driving environmental exposure. Analogue adaptations may be possible among the determinants driving workers exposure.
Scaling tool: environmental exposure: Using EUSES software at https://ec.europa.eu/jrc/en/scientific-tool/european-union-system-evaluation-substances. workers exposure: See exposure modifiers in ECETOC TRAv3 at ECETOC-TR-114-ECETOC-TRA-v3-Background-rationale-for-the-improvements.pdf

3. ES 3: Professional cleaning agents indoors

3.1. Title section

Product category: Lubricants, Greases, Release Products (PC 24), Washing and Cleaning Products (PC 35)
Sector of use: Agriculture, forestry, fishery (SU 1), Manufacture of food products (SU 4), Manufacture of textiles, leather, fur (SU 5), Manufacture of wood and wood products (SU 6a), Manufacture of pulp, paper and paper products (SU 6b), Manufacture of other non-metallic mineral products, e.g. plasters, cement (SU 13), Manufacture of fabricated metal products, except machinery and equipment (SU 15), Manufacture of computer, electronic and optical products, electrical equipment (SU 16), General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment. (SU 17), Manufacture of furniture (SU 18), Building and construction work (SU 19), Health services (SU 20), Scientific research and development (SU 24)

Environment	
1: *cleaning agents indoor use*	ERC 8a
Worker	
2: *Partly open batch process*	PROC 4
3: *External Transfer Processes*	PROC 8a
4: *Internal Transfer Processes*	PROC 8b
5: *Roller Application or Brushing*	PROC 10
6: *Spraying indoors*	PROC 11
7: *Article treatment by dipping*	PROC 13

3.2. Conditions of use affecting exposure

3.2.1. Control of environmental exposure: *cleaning agents indoor use* (ERC 8a)

Conditions and measures related to biological sewage treatment plant
Municipal sewage treatment plant (STP): Yes (Water: 67.46%)
Conditions and measures related to external treatment of waste (including article waste)
Dispose of waste product or used containers according to local regulations.

3.2.2. Control of worker exposure: *Partly open batch process* (PROC 4)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1 h/day
Technical and organisational conditions and measures
Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Indoor use

Assumes process temperature up to 40 °C

3.2.3. Control of worker exposure: *External Transfer Processes* (PROC 8a)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1 h/day
Technical and organisational conditions and measures
Provide specifically designed and maintained LEV (receiving hood type). Ensure effectiveness is at least 80%.
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

3.2.4. Control of worker exposure: *Internal Transfer Processes* (PROC 8b)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1 h/day
Technical and organisational conditions and measures
Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

3.2.5. Control of worker exposure: *Roller Application or Brushing* (PROC 10)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure

Covers use up to 4 h/day
Technical and organisational conditions and measures
Provide specifically designed and maintained LEV (receiving hood type). Ensure effectiveness is at least 80%.
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

3.2.6. Control of worker exposure: *Spraying indoors* (PROC 11)

Product (article) characteristics
Covers concentrations up to 25 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1 h/day
Technical and organisational conditions and measures
Provide specifically designed and maintained LEV (receiving hood type). Ensure effectiveness is at least 80%.
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

3.2.7. Control of worker exposure: *Article treatment by dipping* (PROC 13)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 8 h/day
Technical and organisational conditions and measures
Provide specifically designed and maintained LEV (receiving hood type). Ensure effectiveness is at least 80%.
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.

General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

3.3. Exposure estimation and reference to its source

3.3.1. Environmental release and exposure: *cleaning agents indoor use* (ERC 8a)

Release route	Release rate	Release estimation method
Water	0.165 kg/day	ERC
Air	0.165 kg/day	ERC
Soil	0 kg/day	ERC

Protection target	Exposure estimate	RCR
Man via environment - Inhalation (systemic effects)	9.17E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	1.1E-4 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

3.3.2. Worker exposure: *Partly open batch process* (PROC 4)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	2.954 mg/m³ (TRA Workers 3.0)	0.12
Dermal, systemic, long term	0.686 mg/kg bw/day (TRA Workers 3.0)	0.078
Combined, systemic, long term		0.198

3.3.3. Worker exposure: *External Transfer Processes* (PROC 8a)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	4.924 mg/m³ (TRA Workers 3.0)	0.199
Dermal, systemic, long term	2.742 mg/kg bw/day (TRA Workers 3.0)	0.313
Combined, systemic, long term		0.513

3.3.4. Worker exposure: *Internal Transfer Processes* (PROC 8b)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	2.954 mg/m³ (TRA Workers 3.0)	0.12
Dermal, systemic, long term	2.742 mg/kg bw/day (TRA Workers 3.0)	0.313
Combined, systemic, long term		0.433

3.3.5. Worker exposure: *Roller Application or Brushing* (PROC 10)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	10.34 mg/m³ (TRA Workers 3.0)	0.419
Dermal, systemic, long term	2.743 mg/kg bw/day (TRA Workers 3.0)	0.313
Combined, systemic, long term		0.732

3.3.6. Worker exposure: *Spraying indoors* (PROC 11)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	8.272 mg/m³ (TRA Workers 3.0)	0.335

Route of exposure and type of effects	Exposure estimate	RCR
Dermal, systemic, long term	2.571 mg/kg bw/day (TRA Workers 3.0)	0.294
Combined, systemic, long term		0.629

3.3.7. Worker exposure: *Article treatment by dipping* (PROC 13)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	9.848 mg/m³ (TRA Workers 3.0)	0.399
Dermal, systemic, long term	0.548 mg/kg bw/day (TRA Workers 3.0)	0.063
Combined, systemic, long term		0.461

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

Guidance: Analogue adaptations may be possible among the determinants driving workers exposure. Analogue adaptations may be possible among the determinants driving environmental exposure
Scaling tool: workers exposure: modelled with ECETOC TRA v3 (see exposure modifiers in ECETOC TRAv3 at ECETOC-TR-114-ECETOC-TRA-v3-Background-rationale-for-the-improvements.pdf). environmental exposure: Using EUSES software at https://ec.europa.eu/jrc/en/scientific-tool/european-union-system-evaluation-substances.

4. ES 4: Washing and Cleaning Agents for Consumers

Product category: Lubricants, Greases, Release Products (PC 24), Washing and Cleaning Products (PC 35)

Environment		SPERC
1: *Washing and Cleaning*	ERC 8a	*AISE 8a.1a.v2*
Consumer		SCED
2: *Liquid degreasers <50%*	PC 24	
3: *Laundry and dishwashing*	PC 35	
4: *Household floor cleaning - mixing and loading*	PC 35	
5: *Household floor cleaning - application*	PC 35	
6: *Sprays for cleaning*	PC 35	

4.2. Conditions of use affecting exposure

4.2.1. Control of environmental exposure: *Washing and Cleaning* (ERC 8a)

Other conditions affecting environmental exposure
Product applied in aqueous process solution with negligible volatilization.
Spent process fluid discharged to wastewater for subsequent treatment.
Municipal sewage treatment plant is assumed.

4.2.2. Control of consumer exposure: *Liquid degreasers <50%* (PC 24)

Product (article) characteristics
Covers concentrations up to 50 %
Oral exposure is considered to be not relevant.
Amount used (or contained in articles), frequency and duration of use/exposure
Exposure duration = 1 h/event
Covers use up to 1 events per day
For each use event, covers use amounts up to 22 g/event
Other conditions affecting consumers exposure
Assumes that potential dermal contact is limited to hands and forearms.

4.2.3. Control of consumer exposure: *Laundry and dishwashing* (PC 35)

Product (article) characteristics
Inhalation exposure is considered to be not relevant.
Covers concentrations up to 50 %
Oral exposure is considered to be not relevant.
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1 events per day
Other conditions affecting consumers exposure
Assumes that potential dermal contact is limited to fingertips.

4.2.4. Control of consumer exposure: *Household floor cleaning - mixing and loading* (PC 35)

Product (article) characteristics
Covers concentrations up to 30 %
evaporation of vapour or dust

exposure of hands during mixing and loading and of hands and forearms during application
Oral exposure is considered to be not relevant.
No spraying
liquid cleaner concentrates with up to 30% (w/w) of MMB are diluted before use (min 1:15), which leads to <= 2 % of MMB concentration in the applied wash solution or ready to use products
Amount used (or contained in articles), frequency and duration of use/exposure
161 days per year
Covers use up to 1 events per day
Exposure duration = 0.01 h/event
Information and behavioral advice for consumers
adult
indoor
Other conditions affecting consumers exposure
Assumes that potential dermal contact is limited to hands and forearms.

4.2.5. Control of consumer exposure: *Household floor cleaning - application* (PC 35)

Product (article) characteristics
Covers concentrations up to 2 %
evaporation of vapour or dust
exposure of hands during mixing and loading and of hands and forearms during application
Oral exposure is considered to be not relevant.
No spraying
liquid cleaner concentrates with up to 30% (w/w) of MMB are diluted before use (min 1:15), which leads to <= 2 % of MMB concentration in the applied wash solution or ready to use products
Amount used (or contained in articles), frequency and duration of use/exposure
161 days per year
Covers use up to 1 events per day
Exposure duration = 2 h/event
Information and behavioral advice for consumers
adult
indoor
Other conditions affecting consumers exposure
Assumes that potential dermal contact is limited to hands and forearms.

4.2.6. Control of consumer exposure: *Sprays for cleaning* (PC 35)

Product (article) characteristics
Oral exposure is considered to be not relevant.
Covers concentrations up to 20 %
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1 events per day
For each use event, covers use amounts up to 22 g/event
Exposure duration = 1 h/event
Other conditions affecting consumers exposure
Assumes that potential dermal contact is limited to hands and forearms.

4.3. Exposure estimation and reference to its source

4.3.1. Environmental release and exposure: *Washing and Cleaning* (ERC 8a)

Release route	Release rate	Release estimation method
Water	0.11 kg/day	SPERC
Air	0 kg/day	SPERC
Soil	0 kg/day	SPERC

Protection target	Exposure estimate	RCR
Man via environment - Inhalation (systemic effects)	9.17E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	9.77E-5 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

4.3.2. Consumer exposure: *Liquid degreasers <50%* (PC 24)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.15 mg/m³ (ConsExpo)	0.02
Dermal, systemic, long term	0.062 mg/kg bw/day (ConsExpo)	0.02
Oral, systemic, long term	0 mg/kg bw/day (oral exposure not relevant)	< 0.01
Combined, systemic, long term		0.04

4.3.3. Consumer exposure: *Laundry and dishwashing* (PC 35)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0 mg/m³ (TRA Consumers 3.1)	< 0.01
Dermal, systemic, long term	1.19 mg/kg bw/day (TRA Consumers 3.1)	0.38
Oral, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01
Combined, systemic, long term		0.38

4.3.4. Consumer exposure: *Household floor cleaning - mixing and loading* (PC 35)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	4.1E-6 mg/m³ (ConsExpo)	< 0.01
Dermal, systemic, long term	7.7E-3 mg/kg bw/day (ConsExpo)	< 0.01
Oral, systemic, long term	0 mg/kg bw/day (ConsExpo)	< 0.01
Combined, systemic, long term		< 0.01

4.3.5. Consumer exposure: *Household floor cleaning - application* (PC 35)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.4 mg/m³ (ConsExpo)	0.054
Dermal, systemic, long term	0.018 mg/kg bw/day (ConsExpo)	< 0.01
Oral, systemic, long term	0 mg/kg bw/day (ConsExpo)	< 0.01
Combined, systemic, long term		0.06

4.3.6. Consumer exposure: *Sprays for cleaning* (PC 35)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.42 mg/m³ (ConsExpo)	0.057

Route of exposure and type of effects	Exposure estimate	RCR
Dermal, systemic, long term	0.025 mg/kg bw/day (ConsExpo)	< 0.01
Oral, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01
Combined, systemic, long term		0.065

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

Guidance: Analogue adaptations may be possible among the determinants driving environmental exposure. Analogue adaptations may be possible among the determinants driving consumer exposure.
Scaling tool: environmental exposure: Using EUSES software at https://ec.europa.eu/jrc/en/scientific-tool/european-union-system-evaluation-substances. consumer exposure: - If modelled with ECETOC TRAv3 at ECETOC-TR-114-ECETOC-TRA-v3-Background-rationale-for-the-improvements.pdf - If modelled with Consexpo at ConsExpo | RIVM (Cleaning Products Fact Sheet, version 2018)
Scaling instructions: https://www.rivm.nl/en/consexpo/fact-sheets
Scaling tool web link: https://consexpoweb.nl

5. ES 5: Professional end-use of polishes and wax blends

5.1. Title section

Product category: Polishes and Wax Blends (PC 31)
Sector of use: Manufacture of textiles, leather, fur (SU 5), Manufacture of wood and wood products (SU 6a)

Environment		SPERC
1: *Professional end-use of polishes and wax blends*	ERC 8a	*FEICA 8a.3.v2*
Worker		SWED
2: *Professional Use of Maintenance Products; Leather care product; Semi-Automatic process (AISE-P605); Use Phase*	PROC 2	
3: *Professional Use of Maintenance Products; Leather care product; Semi-Automatic process (AISE-P605); Preparatory Phase*	PROC 8b	
4: *8h - Brushing a professional maintenance product*	PROC 10	
5: *<4h Manual brushing/wiping a professional maintenance product*	PROC 10	
6: *<1h - Spraying of a professional maintenance product*	PROC 11	

5.2. Conditions of use affecting exposure

5.2.1. Control of environmental exposure: *Professional end-use of polishes and wax blends* (ERC 8a)

Technical and organisational conditions and measures
Process with efficient use of raw materials.
Application of solvent borne or water-borne products
Covers indoor and outdoor use.
Equipment cleaned with water, washing disposed of with wastewater. Worst case assumption for solvent-borne products
Conditions and measures related to biological sewage treatment plant
Municipal sewage treatment plant is assumed.
Conditions and measures related to external treatment of waste (including article waste)
Dispose of waste product or used containers according to local regulations.

5.2.2. Control of worker exposure: *Professional Use of Maintenance Products; Leather care product; Semi-Automatic process (AISE-P605); Use Phase* (PROC 2)

Product (article) characteristics
Covers concentrations up to 1 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 8 h/day
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Assumes process temperature up to 40 °C
Indoor use

5.2.3. Control of worker exposure: *Professional Use of Maintenance Products; Leather care product; Semi-Automatic process (AISE-P605); Preparatory Phase* (PROC 8b)

Product (article) characteristics
Covers concentrations up to 1 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1 h/day
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Assumes process temperature up to 40 °C
Indoor use

5.2.4. Control of worker exposure: *8h - Brushing a professional maintenance product* (PROC 10)

Product (article) characteristics
Covers concentrations up to 1 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 8 h/day
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Assumes process temperature up to 40 °C
Indoor use

5.2.5. Control of worker exposure: *<4h Manual brushing/wiping a professional maintenance product* (PROC 10)

Product (article) characteristics
Covers concentrations up to 1 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 4 h/day
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.

Other conditions affecting workers exposure
Assumes process temperature up to 40 °C
Indoor use

5.2.6. Control of worker exposure: *<1h - Spraying of a professional maintenance product* (PROC 11)

Product (article) characteristics
Covers concentrations up to 1 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1 h/day
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Assumes process temperature up to 40 °C
Indoor use

5.3. Exposure estimation and reference to its source

5.3.1. Environmental release and exposure: *Professional end-use of polishes and wax blends* (ERC 8a)

Release route	Release rate	Release estimation method
Water	1.5E-3 kg/day	SPERC
Air	0.098 kg/day	SPERC
Soil	0 kg/day	SPERC

Protection target	Exposure estimate	RCR
Man via environment - Inhalation (systemic effects)	9.16E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	7.43E-5 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

5.3.2. Worker exposure: *Professional Use of Maintenance Products; Leather care product; Semi-Automatic process (AISE-P605); Use Phase* (PROC 2)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	2.462 mg/m³ (TRA Workers 3.0)	0.1
Dermal, systemic, long term	0.137 mg/kg bw/day (TRA Workers 3.0)	0.016
Combined, systemic, long term		0.115

5.3.3. Worker exposure: *Professional Use of Maintenance Products; Leather care product; Semi-Automatic process (AISE-P605); Preparatory Phase* (PROC 8b)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.985 mg/m³ (TRA Workers 3.0)	0.04
Dermal, systemic, long term	1.371 mg/kg bw/day (TRA Workers 3.0)	0.157
Combined, systemic, long term		0.197

5.3.4. Worker exposure: *8h - Brushing a professional maintenance product* (PROC 10)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	12.31 mg/m³ (TRA Workers 3.0)	0.498
Dermal, systemic, long term	0.549 mg/kg bw/day (TRA Workers 3.0)	0.063
Combined, systemic, long term		0.561

5.3.5. Worker exposure: *<4h Manual brushing/wiping a professional maintenance product* (PROC 10)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	7.386 mg/m³ (TRA Workers 3.0)	0.299
Dermal, systemic, long term	2.743 mg/kg bw/day (TRA Workers 3.0)	0.313
Combined, systemic, long term		0.613

5.3.6. Worker exposure: *<1h - Spraying of a professional maintenance product* (PROC 11)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	9.848 mg/m³ (TRA Workers 3.0)	0.399
Dermal, systemic, long term	2.143 mg/kg bw/day (TRA Workers 3.0)	0.245
Combined, systemic, long term		0.644

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

Guidance: Analogue adaptations may be possible among the determinants driving environmental exposure. Analogue adaptations may be possible among the determinants driving workers exposure.
Scaling tool: environmental exposure: Using EUSES software at https://ec.europa.eu/jrc/en/scientific-tool/european-union-system-evaluation-substances. workers exposure: See exposure modifiers in ECETOC TRAv3 at ECETOC-TR-114-ECETOC-TRA-v3-Background-rationale-for-the-improvements.pdf.

6. ES 6: Consumer end-use of polishes and wax blends

6.1. Title section

Product category: Polishes and Wax Blends (PC 31)

Environment		SPERC
1: *Consumer end-use of polishes and wax blends*	ERC 8a	*AISE 8a.1a.v2*
Consumer		SCED
2: *household floor polish, wax/cream*	PC 31	
3: *household floor polish, spray*	PC 31	
4: *Furniture polish, wax/cream*	PC 31	
5: *Furniture polish, spray*	PC 31	
6: *Shoe polish, wax/cream*	PC 31	
7: *Shoe polish, spray*	PC 31	

6.2. Conditions of use affecting exposure

6.2.1. Control of environmental exposure: *Consumer end-use of polishes and wax blends* (ERC 8a)

Conditions and measures related to external treatment of waste (including article waste)
Dispose of waste product or used containers according to local regulations.
Other conditions affecting environmental exposure
Product applied in aqueous process solution with negligible volatilization.
Spent process fluid discharged to wastewater for subsequent treatment.
Municipal sewage treatment plant is assumed.
Covers Indoor and Outdoor Use

6.2.2. Control of consumer exposure: *household floor polish, wax/cream* (PC 31)

Product (article) characteristics
Concentration of the substance in the product: <= 1 %
Covers concentrations up to 2 %
Oral exposure is considered to be not relevant.
No spraying
Amount used (or contained in articles), frequency and duration of use/exposure
Duration of application: = 180 minutes
For each use event, covers use amounts up to 550 g/event
Exposure duration = 1.5 h/event
Covers use up to 1 events per day
Other conditions affecting consumers exposure
Assumes that potential dermal contact is limited to palm of one hand

6.2.3. Control of consumer exposure: *household floor polish, spray* (PC 31)

Product (article) characteristics
Concentration of the substance in the product: <= 1 %
Covers concentrations up to 2 %

Oral exposure is considered to be not relevant.
Amount used (or contained in articles), frequency and duration of use/exposure
Duration of application: = 180 minutes
For each use event, covers use amounts up to 53 g/event
Exposure duration = 1.5 h/event
Covers use up to 1 events per day
Other conditions affecting consumers exposure
Assumes that potential dermal contact is limited to hands and forearms.

6.2.4. Control of consumer exposure: *Furniture polish, wax/cream* (PC 31)

Product (article) characteristics
Concentration of the substance in the product: <= 1 %
Covers concentrations up to 2 %
Oral exposure is considered to be not relevant.
No spraying
Amount used (or contained in articles), frequency and duration of use/exposure
Duration of application: = 120 minutes
For each use event, covers use amounts up to 550 g/event
Exposure duration = 4 h/event
Covers infrequent uses, up to 2 weeks per year
Covers use up to 1 events per day
Other conditions affecting consumers exposure
Assumes that potential dermal contact is limited to palm of one hand

6.2.5. Control of consumer exposure: *Furniture polish, spray* (PC 31)

Product (article) characteristics
Concentration of the substance in the product: <= 1 %
Covers concentrations up to 2 %
Oral exposure is considered to be not relevant.
Amount used (or contained in articles), frequency and duration of use/exposure
Duration of application: = 120 minutes
For each use event, covers use amounts up to 109 g/event
Exposure duration = 4 h/event
Covers infrequent uses, up to 2 weeks per year
Covers use up to 1 events per day
Other conditions affecting consumers exposure
Assumes that potential dermal contact is limited to hands and forearms.

6.2.6. Control of consumer exposure: *Shoe polish, wax/cream* (PC 31)

Product (article) characteristics
Concentration of the substance in the product: <= 1 %
Covers concentrations up to 2 %
Inhalation exposure is considered to be not relevant.
Oral exposure is considered to be not relevant.
Amount used (or contained in articles), frequency and duration of use/exposure

Duration of application: = 120 minutes
Covers infrequent uses, up to 2 weeks per year
Covers use up to 2 events per day
Other conditions affecting consumers exposure
Assumes that potential dermal contact is limited to inside hands / one hand / palm of hands.

6.2.7. Control of consumer exposure: *Shoe polish, spray* (PC 31)

Product (article) characteristics
Concentration of the substance in the product: <= 1 %
Covers concentrations up to 2 %
Oral exposure is considered to be not relevant.
Amount used (or contained in articles), frequency and duration of use/exposure
Duration of application: = 120 minutes
For each use event, covers use amounts up to 2.8 g/event
Exposure duration = 2 h/event
Covers infrequent uses, up to 2 weeks per year
Covers use up to 1 events per day
Other conditions affecting consumers exposure
Assumes that potential dermal contact is limited to inside hands / one hand / palm of hands.

6.3. Exposure estimation and reference to its source

6.3.1. Environmental release and exposure: *Consumer end-use of polishes and wax blends* (ERC 8a)

Release route	Release rate	Release estimation method
Water	0.3 kg/day	SPERC
Air	0 kg/day	SPERC
Soil	0 kg/day	SPERC

Protection target	Exposure estimate	RCR
Man via environment - Inhalation (systemic effects)	9.18E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	1.39E-4 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

6.3.2. Consumer exposure: *household floor polish, wax/cream* (PC 31)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.032 mg/m³ (ConsExpo)	< 0.01
Dermal, systemic, long term	9.1E-3 mg/kg bw/day (ConsExpo)	< 0.01
Oral, systemic, long term	0 mg/kg bw/day (ConsExpo)	< 0.01
Combined, systemic, long term		< 0.01

6.3.3. Consumer exposure: *household floor polish, spray* (PC 31)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	2.5E-3 mg/m³ (ConsExpo)	< 0.01
Dermal, systemic, long term	8.4E-4 mg/kg bw/day (ConsExpo)	< 0.01

Route of exposure and type of effects	Exposure estimate	RCR
Oral, systemic, long term	0 mg/kg bw/day (ConsExpo)	< 0.01
Combined, systemic, long term		< 0.01

6.3.4. Consumer exposure: *Furniture polish, wax/cream* (PC 31)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.018 mg/m³ (ConsExpo)	< 0.01
Dermal, systemic, long term	0.64 mg/kg bw/day (ConsExpo)	0.204
Oral, systemic, long term	0 mg/kg bw/day (ConsExpo)	< 0.01
Combined, systemic, long term		0.207

6.3.5. Consumer exposure: *Furniture polish, spray* (PC 31)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	4.9E-4 mg/m³ (ConsExpo)	< 0.01
Dermal, systemic, long term	2.7E-4 mg/kg bw/day (ConsExpo)	< 0.01
Oral, systemic, long term	0 mg/kg bw/day (ConsExpo)	< 0.01
Combined, systemic, long term		< 0.01

6.3.6. Consumer exposure: *Shoe polish, wax/cream* (PC 31)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0 mg/m³ (ConsExpo)	< 0.01
Dermal, systemic, long term	0.15 mg/kg bw/day (ConsExpo)	0.048
Oral, systemic, long term	0 mg/kg bw/day (ConsExpo)	< 0.01
Combined, systemic, long term		0.048

6.3.7. Consumer exposure: *Shoe polish, spray* (PC 31)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	4.7E-4 mg/m³ (ConsExpo)	< 0.01
Dermal, systemic, long term	0.011 mg/kg bw/day (ConsExpo)	< 0.01
Oral, systemic, long term	0 mg/kg bw/day (ConsExpo)	< 0.01
Combined, systemic, long term		< 0.01

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

Guidance: Analogue adaptations may be possible among the determinants driving environmental exposure. Analogue adaptations may be possible among the determinants driving workers exposure.
Scaling tool: Environmental exposure: using EUSES software at https://ec.europa.eu/jrc/en/scientific-tool/european-union-system-evaluation-substances. consumer exposure: - If modelled with ECETOC TRAv3 at ECETOC-TR-114-ECETOC-TRA-v3-Background-rationale-for-the-improvements.pdf - If modelled with Consexpo at ConsExpo | RIVM (Cleaning Products Fact Sheet, version 2018)
Scaling instructions: https://www.rivm.nl/en/consexpo/fact-sheets
Scaling tool web link: https://consexpoweb.nl

7. ES 7: Industrial coatings use as solvent

7.1. Title section

Product category: Coatings and Paints, Thinners, paint removers (PC 9a)
Sector of use: Agriculture, forestry, fishery (SU 1), Mining (without offshore industries) (SU 2a), Offshore industries (SU 2b), Manufacture of food products (SU 4), Manufacture of textiles, leather, fur (SU 5), Manufacture of wood and wood products (SU 6a), Manufacture of pulp, paper and paper products (SU 6b), Printing and reproduction of recorded media (SU 7), Manufacture of bulk, large scale chemicals (including petroleum products) (SU 8), Manufacture of fine chemicals (SU 9), Manufacture of rubber products (SU 11), Manufacture of plastics products, including compounding and conversion (SU 12), Manufacture of other non-metallic mineral products, e.g. plasters, cement (SU 13), Manufacture of basic metals, including alloys (SU 14), Manufacture of fabricated metal products, except machinery and equipment (SU 15), Manufacture of computer, electronic and optical products, electrical equipment (SU 16), General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment. (SU 17), Manufacture of furniture (SU 18), Building and construction work (SU 19), Health services (SU 20), Electricity, steam, gas water supply and sewage treatment (SU 23), Scientific research and development (SU 24)

Environment	
1: *Solvent use in coatings*	ERC 4
Worker	
2: *Closed process with sample taking*	PROC 2
3: *Closed batch process*	PROC 3
4: *Partly open batch process*	PROC 4
5: *Blending in open batch process*	PROC 5
6: *Industrial spaying*	PROC 7
7: *External Transfer Processes*	PROC 8a
8: *Internal Transfer Processes*	PROC 8b
9: *Filling of small containers*	PROC 9
10: *Roller Application or Brushing*	PROC 10
11: *Article treatment by dipping*	PROC 13

7.2. Conditions of use affecting exposure

7.2.1. Control of environmental exposure: *Solvent use in coatings* (ERC 4)

Amount used, frequency and duration of use (or from service life)
Annual amount per site <= 80 tonnes/year
Daily amount per site <= 4 tonnes/day
Conditions and measures related to biological sewage treatment plant
Assumed domestic sewage treatment plant flow >= 2E3 m3/day
Municipal sewage treatment plant is assumed.
Conditions and measures related to external treatment of waste (including article waste)
Dispose of waste product or used containers according to local regulations.
Other conditions affecting environmental exposure
Receiving surface water flow >= 1.8E4 m3/day

7.2.2. Control of worker exposure: *Closed process with sample taking* (PROC 2)

Product (article) characteristics
Covers concentrations up to 100 %

Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 8 h/day
Technical and organisational conditions and measures
Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90%.
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Assumes process temperature up to 40 °C
Indoor use

7.2.3. Control of worker exposure: *Closed batch process* (PROC 3)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 8 h/day
Technical and organisational conditions and measures
Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90%.
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Assumes process temperature up to 40 °C
Indoor use

7.2.4. Control of worker exposure: *Partly open batch process* (PROC 4)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 8 h/day
Technical and organisational conditions and measures
Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90%.
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal

operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

7.2.5. Control of worker exposure: *Blending in open batch process* (PROC 5)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 8 h/day
Technical and organisational conditions and measures
Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90%.
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Assumes process temperature up to 40 °C
Indoor use

7.2.6. Control of worker exposure: *Industrial spaying* (PROC 7)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 4 h/day
Technical and organisational conditions and measures
Provide enclosing hood with very high effectiveness (such as fume cupboard) or effective ventilation by spray booth according to EN 16985. Ensure effectiveness is at least 95%.
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
Conditions and measures related to personal protection, hygiene and health evaluation

Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

7.2.7. Control of worker exposure: *External Transfer Processes* (PROC 8a)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1 h/day
Technical and organisational conditions and measures
Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90%.
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

7.2.8. Control of worker exposure: *Internal Transfer Processes* (PROC 8b)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 4 h/day
Technical and organisational conditions and measures
Provide enclosing hood with very high effectiveness (such as fume cupboard) or effective ventilation by spray booth according to EN 16985. Ensure effectiveness is at least 95%.
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.

Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

7.2.9. Control of worker exposure: *Filling of small containers* (PROC 9)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 8 h/day
Technical and organisational conditions and measures
Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90%.
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

7.2.10. Control of worker exposure: *Roller Application or Brushing* (PROC 10)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 4 h/day
Technical and organisational conditions and measures
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Provide specifically designed and maintained LEV (fixed capturing hood type, on-tool extraction or enclosing hood type). Ensure effectiveness is at least 90%.
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure

Indoor use
Assumes process temperature up to 40 °C

7.2.11. Control of worker exposure: *Article treatment by dipping* (PROC 13)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 4 h/day
Technical and organisational conditions and measures
Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Assumes that activities are undertaken with appropriate and well maintained equipment by trained personal operating under supervision.; Ensure regular inspection, cleaning and maintenance of equipment and machines.; Clear spills immediately.; Ensure daily cleaning of the equipment.
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

7.3. Exposure estimation and reference to its source

7.3.1. Environmental release and exposure: *Solvent use in coatings* (ERC 4)

Release route	Release rate	Release estimation method
Water	4E3 kg/day	ERC
Air	4E3 kg/day	ERC
Soil	200 kg/day	ERC

Protection target	Exposure estimate	RCR
Man via environment - Inhalation (systemic effects)	0.061 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	0.113 mg/kg bw/day (EUSES 2.1.2)	0.09
Man via environment - combined routes		0.098

7.3.2. Worker exposure: *Closed process with sample taking* (PROC 2)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.492 mg/m³ (TRA Workers 3.0)	0.02
Dermal, systemic, long term	1.37 mg/kg bw/day (TRA Workers 3.0)	0.157
Combined, systemic, long term		0.177

7.3.3. Worker exposure: *Closed batch process* (PROC 3)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	1.477 mg/m³ (TRA Workers 3.0)	0.06
Dermal, systemic, long term	0.69 mg/kg bw/day (TRA Workers 3.0)	0.079
Combined, systemic, long term		0.139

7.3.4. Worker exposure: *Partly open batch process* (PROC 4)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	2.462 mg/m³ (TRA Workers 3.0)	0.1
Dermal, systemic, long term	0.686 mg/kg bw/day (TRA Workers 3.0)	0.078
Combined, systemic, long term		0.178

7.3.5. Worker exposure: *Blending in open batch process* (PROC 5)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	2.462 mg/m³ (TRA Workers 3.0)	0.1
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.031
Combined, systemic, long term		0.131

7.3.6. Worker exposure: *Industrial spaying* (PROC 7)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	14.77 mg/m³ (TRA Workers 3.0)	0.598
Dermal, systemic, long term	0.214 mg/kg bw/day (TRA Workers 3.0)	0.024
Combined, systemic, long term		0.623

7.3.7. Worker exposure: *External Transfer Processes* (PROC 8a)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.985 mg/m³ (TRA Workers 3.0)	0.04
Dermal, systemic, long term	1.371 mg/kg bw/day (TRA Workers 3.0)	0.157
Combined, systemic, long term		0.197

7.3.8. Worker exposure: *Internal Transfer Processes* (PROC 8b)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.739 mg/m³ (TRA Workers 3.0)	0.03
Dermal, systemic, long term	0.686 mg/kg bw/day (TRA Workers 3.0)	0.078
Combined, systemic, long term		0.108

7.3.9. Worker exposure: *Filling of small containers* (PROC 9)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	2.462 mg/m³ (TRA Workers 3.0)	0.1
Dermal, systemic, long term	0.686 mg/kg bw/day (TRA Workers 3.0)	0.078
Combined, systemic, long term		0.178

7.3.10. Worker exposure: *Roller Application or Brushing* (PROC 10)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	2.068 mg/m³ (TRA Workers 3.0)	0.084
Dermal, systemic, long term	1.372 mg/kg bw/day (TRA Workers 3.0)	0.157
Combined, systemic, long term		0.24

7.3.11. Worker exposure: *Article treatment by dipping* (PROC 13)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	8.863 mg/m³ (TRA Workers 3.0)	0.359
Dermal, systemic, long term	0.686 mg/kg bw/day (TRA Workers 3.0)	0.078
Combined, systemic, long term		0.437

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

Guidance: Analogue adaptations may be possible among the determinants driving environmental exposure. Analogue adaptations may be possible among the determinants driving workers exposure.
Scaling tool: Environmental exposure: using EUSES software at https://ec.europa.eu/jrc/en/scientific-tool/european-union-system-evaluation-substances. Workers exposure: See exposure modifiers in ECETOC TRAv3 at ECETOC-TR-114-ECETOC-TRA-v3-Background-rationale-for-the-improvements.pdf.

8. ES 8: Professional use of coatings (solvent / water based / ink)

8.1. Title section

Product category: Adhesives, Sealants (PC 1), Coatings and Paints, Thinners, paint removers (PC 9a), Ink and Toners (PC 18)
Sector of use: Agriculture, forestry, fishery (SU 1), Manufacture of food products (SU 4), Manufacture of textiles, leather, fur (SU 5), Manufacture of wood and wood products (SU 6a), Manufacture of pulp, paper and paper products (SU 6b), Manufacture of plastics products, including compounding and conversion (SU 12), Health services (SU 20)

Environment	
1: *use of coatings indoor*	ERC 8a
Worker	
2: *Partly open batch process*	PROC 4
3: *Blending in open batch process*	PROC 5
4: *External Transfer Processes*	PROC 8a
5: *Internal Transfer Processes*	PROC 8b
6: *Roller Application or Brushing*	PROC 10
7: *Spraying*	PROC 11
8: *Article treatment by dipping*	PROC 13
9: *Laboratory Use*	PROC 15

8.2. Conditions of use affecting exposure

8.2.1. Control of environmental exposure: *use of coatings indoor* (ERC 8a)

Conditions and measures related to biological sewage treatment plant
Municipal sewage treatment plant (STP): Yes (Water: 67.46%)
Conditions and measures related to external treatment of waste (including article waste)
Dispose of waste product or used containers according to local regulations.

8.2.2. Control of worker exposure: *Partly open batch process* (PROC 4)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1 h/day
Technical and organisational conditions and measures
Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

8.2.3. Control of worker exposure: *Blending in open batch process* (PROC 5)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1 h/day
Technical and organisational conditions and measures
Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

8.2.4. Control of worker exposure: *External Transfer Processes* (PROC 8a)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1 h/day
Technical and organisational conditions and measures
Provide specifically designed and maintained LEV (receiving hood type). Ensure effectiveness is at least 80%.
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

8.2.5. Control of worker exposure: *Internal Transfer Processes* (PROC 8b)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure

Covers use up to 4 h/day
Technical and organisational conditions and measures
Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

8.2.6. Control of worker exposure: *Roller Application or Brushing* (PROC 10)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 0.25 h/day
Technical and organisational conditions and measures
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Provide specifically designed and maintained LEV (receiving hood type). Ensure effectiveness is at least 80%.
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

8.2.7. Control of worker exposure: *Spraying* (PROC 11)

Product (article) characteristics
Covers concentrations up to 25 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1 h/day
Technical and organisational conditions and measures
Provide specifically designed and maintained LEV (receiving hood type). Ensure effectiveness is at least 80%.
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

8.2.8. Control of worker exposure: *Article treatment by dipping* (PROC 13)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 4 h/day
Technical and organisational conditions and measures
Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

8.2.9. Control of worker exposure: *Laboratory Use* (PROC 15)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 4 h/day
Technical and organisational conditions and measures
Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

8.3. Exposure estimation and reference to its source

8.3.1. Environmental release and exposure: *use of coatings indoor* (ERC 8a)

Release route	Release rate	Release estimation method
Water	0.044 kg/day	ERC
Air	0.044 kg/day	ERC
Soil	0 kg/day	ERC

Protection target	Exposure estimate	RCR
Man via environment - Inhalation (systemic effects)	9.17E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	8.34E-5 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

8.3.2. Worker exposure: *Partly open batch process* (PROC 4)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	2.954 mg/m³ (TRA Workers 3.0)	0.12
Dermal, systemic, long term	1.372 mg/kg bw/day (TRA Workers 3.0)	0.157
Combined, systemic, long term		0.276

8.3.3. Worker exposure: *Blending in open batch process* (PROC 5)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	2.954 mg/m³ (TRA Workers 3.0)	0.12
Dermal, systemic, long term	2.742 mg/kg bw/day (TRA Workers 3.0)	0.313
Combined, systemic, long term		0.433

8.3.4. Worker exposure: *External Transfer Processes* (PROC 8a)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	4.924 mg/m³ (TRA Workers 3.0)	0.199
Dermal, systemic, long term	0.274 mg/kg bw/day (TRA Workers 3.0)	0.031
Combined, systemic, long term		0.231

8.3.5. Worker exposure: *Internal Transfer Processes* (PROC 8b)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	8.863 mg/m³ (TRA Workers 3.0)	0.359
Dermal, systemic, long term	1.371 mg/kg bw/day (TRA Workers 3.0)	0.157
Combined, systemic, long term		0.516

8.3.6. Worker exposure: *Roller Application or Brushing* (PROC 10)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	1.723 mg/m³ (TRA Workers 3.0)	0.07
Dermal, systemic, long term	2.743 mg/kg bw/day (TRA Workers 3.0)	0.313
Combined, systemic, long term		0.383

8.3.7. Worker exposure: *Spraying* (PROC 11)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	11.81 mg/m³ (TRA Workers 3.0)	0.478
Dermal, systemic, long term	1.286 mg/kg bw/day (TRA Workers 3.0)	0.147
Combined, systemic, long term		0.625

8.3.8. Worker exposure: *Article treatment by dipping* (PROC 13)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	8.863 mg/m³ (TRA Workers 3.0)	0.359
Dermal, systemic, long term	1.371 mg/kg bw/day (TRA Workers 3.0)	0.157
Combined, systemic, long term		0.516

8.3.9. Worker exposure: *Laboratory Use* (PROC 15)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	4.432 mg/m³ (TRA Workers 3.0)	0.179
Dermal, systemic, long term	0.34 mg/kg bw/day (TRA Workers 3.0)	0.039
Combined, systemic, long term		0.218

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

Guidance: Analogue adaptations may be possible among the determinants driving environmental exposure. Analogue adaptations may be possible among the determinants driving workers exposure.
Scaling tool: environmental exposure: Using EUSES software at https://ec.europa.eu/jrc/en/scientific-tool/european-union-system-evaluation-substances. workers exposure: See exposure modifiers in ECETOC TRAv3 at ECETOC-TR-114-ECETOC-TRA-v3-Background-rationale-for-the-improvements.pdf.
Scaling tool web link: https://www.ecetoc.org/tools/tra-main/

9. ES 9: Consumer uses of adhesives, coatings and ink jet ink

9.1. Title section

Product category: Adhesives, Sealants (PC 1), Coatings and Paints, Thinners, paint removers (PC 9a), Ink and Toners (PC 18)

Environment	
1: *Use as solvent in consumer products*	ERC 8a
Consumer	
2: *Use of adhesives (MMB content < 30%) for spots and small areas*	PC 1
3: *Use of adhesives (MMB content < 10 %) for moderate-size surfaces*	PC 1
4: *Solvent rich wall paint, MMB < 30%*	PC 9a
5: *Solvent rich wall paint, MMB < 5%*	PC 9a
6: *Aerosol paint spray, MMB < 30%*	PC 9a
7: *Aerosol paint spray, MMB < 10%*	PC 9a
8: *Ink for ink jet printer and ball point pens*	PC 18

9.2. Conditions of use affecting exposure

9.2.1. Control of environmental exposure: *Use as solvent in consumer products* (ERC 8a)

Conditions and measures related to external treatment of waste (including article waste)
Dispose of waste product or used containers according to local regulations.
Other conditions affecting environmental exposure
Municipal sewage treatment plant (STP): Yes (Water: 67.46%)

9.2.2. Control of consumer exposure: *Use of adhesives (MMB content < 30%) for spots and small areas* (PC 1)

Product (article) characteristics
Oral exposure is considered to be not relevant.
Covers concentrations up to 30 %
No spraying
Amount used (or contained in articles), frequency and duration of use/exposure
For each use event, covers use amounts up to 9 g/event
Exposure duration = 0.5 h/event
Covers infrequent uses, up to 2 weeks per year
Covers use up to 1 events per day
Other conditions affecting consumers exposure
Assumes that potential dermal contact is limited to fingertips.

9.2.3. Control of consumer exposure: *Use of adhesives (MMB content < 10 %) for moderate-size surfaces* (PC 1)

Product (article) characteristics
Oral exposure is considered to be not relevant.
Covers concentrations up to 10 %
No spraying

Amount used (or contained in articles), frequency and duration of use/exposure
Exposure duration = 2 h/event
For each use event, covers use amounts up to 10 g/event
Covers infrequent uses, up to 2 weeks per year
Covers use up to 1 events per day
Other conditions affecting consumers exposure
Assumes that potential dermal contact is limited to fingertips.

9.2.4. Control of consumer exposure: *Solvent rich wall paint, MMB < 30%* (PC 9a)

Product (article) characteristics
Covers concentrations up to 30 %
Oral exposure is considered to be not relevant.
No spraying
Amount used (or contained in articles), frequency and duration of use/exposure
For each use event, covers use amounts up to 1E3 g/event
Exposure duration = 2.25 h/event
Covers infrequent uses, up to 2 weeks per year
Covers use up to 1 events per day
Other conditions affecting consumers exposure
Assumes that potential dermal contact is limited to hands and forearms.

9.2.5. Control of consumer exposure: *Solvent rich wall paint, MMB < 5%* (PC 9a)

Product (article) characteristics
Covers concentrations up to 5 %
Oral exposure is considered to be not relevant.
No spraying
Amount used (or contained in articles), frequency and duration of use/exposure
For each use event, covers use amounts up to 1E3 g/event
Exposure duration = 2.25 h/event
Covers infrequent uses, up to 2 weeks per year
Covers use up to 1 events per day
Other conditions affecting consumers exposure
Assumes that potential dermal contact is limited to hands and forearms.

9.2.6. Control of consumer exposure: *Aerosol paint spray, MMB < 30%* (PC 9a)

Product (article) characteristics
Covers concentrations up to 30 %
Oral exposure is considered to be not relevant.
Amount used (or contained in articles), frequency and duration of use/exposure
Exposure duration = 0.3 h/event
Covers infrequent uses, up to 2 weeks per year
Covers use up to 1 events per day

Other conditions affecting consumers exposure
Assumes that potential dermal contact is limited to inside hands / one hand / palm of hands.

9.2.7. Control of consumer exposure: *Aerosol paint spray, MMB < 10%* (PC 9a)

Product (article) characteristics
Covers concentrations up to 10 %
Oral exposure is considered to be not relevant.
Amount used (or contained in articles), frequency and duration of use/exposure
For each use event, covers use amounts up to 10 g/event
Exposure duration = 1 h/event
Covers infrequent uses, up to 2 weeks per year
Covers use up to 1 events per day
Other conditions affecting consumers exposure
Assumes that potential dermal contact is limited to inside hands / one hand / palm of hands.

9.2.8. Control of consumer exposure: *Ink for ink jet printer and ball point pens* (PC 18)

Product (article) characteristics
Covers concentrations up to 30 %
No spraying
Oral exposure is considered to be not relevant.
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1 events per day
For each use event, covers use amounts up to 0.1 g/event
Exposure duration = 0.5 h/event
Other conditions affecting consumers exposure
Assumes that potential dermal contact is limited to two fingertips

9.3. Exposure estimation and reference to its source

9.3.1. Environmental release and exposure: *Use as solvent in consumer products* (ERC 8a)

Release route	Release rate	Release estimation method
Water	0.044 kg/day	ERC
Air	0.044 kg/day	ERC
Soil	0 kg/day	ERC

Protection target	Exposure estimate	RCR
Man via environment - Inhalation (systemic effects)	9.17E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	8.34E-5 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

9.3.2. Consumer exposure: *Use of adhesives (MMB content < 30%) for spots and small areas* (PC 1)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.31 mg/m³ (ConsExpo)	0.042
Dermal, systemic, long term	0.014 mg/kg bw/day (ConsExpo)	< 0.01
Oral, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01
Combined, systemic, long term		0.046

9.3.3. Consumer exposure: *Use of adhesives (MMB content < 10 %) for moderate-size surfaces* (PC 1)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.28 mg/m³ (ConsExpo)	0.038
Dermal, systemic, long term	0.047 mg/kg bw/day (ConsExpo)	0.015
Oral, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01
Combined, systemic, long term		0.053

9.3.4. Consumer exposure: *Solvent rich wall paint, MMB < 30%* (PC 9a)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.25 mg/m³ (ConsExpo)	0.034
Dermal, systemic, long term	0.017 mg/kg bw/day (ConsExpo)	< 0.01
Oral, systemic, long term	0 mg/kg bw/day (ConsExpo)	< 0.01
Combined, systemic, long term		0.039

9.3.5. Consumer exposure: *Solvent rich wall paint, MMB < 5%* (PC 9a)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.049 mg/m³ (ConsExpo)	< 0.01
Dermal, systemic, long term	2.9E-3 mg/kg bw/day (ConsExpo)	< 0.01
Oral, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01
Combined, systemic, long term		< 0.01

9.3.6. Consumer exposure: *Aerosol paint spray, MMB < 30%* (PC 9a)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	8.9E-3 mg/m³ (ConsExpo)	< 0.01
Dermal, systemic, long term	0.014 mg/kg bw/day (ConsExpo)	< 0.01
Oral, systemic, long term	0 mg/kg bw/day (ConsExpo)	< 0.01
Combined, systemic, long term		< 0.01

9.3.7. Consumer exposure: *Aerosol paint spray, MMB < 10%* (PC 9a)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	5.6E-3 mg/m³ (ConsExpo)	< 0.01
Dermal, systemic, long term	4.5E-3 mg/kg bw/day (ConsExpo)	< 0.01
Oral, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01
Combined, systemic, long term		< 0.01

9.3.8. Consumer exposure: *Ink for ink jet printer and ball point pens* (PC 18)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	1.154 mg/m³ (TRA Consumers 3.1)	0.156
Dermal, systemic, long term	0.3 mg/kg bw/day (TRA Consumers 3.1)	0.096
Oral, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01

Route of exposure and type of effects	Exposure estimate	RCR
Combined, systemic, long term		0.252

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

Guidance: Analogue adaptations may be possible among the determinants driving environmental exposure. Analogue adaptations may be possible among the determinants driving workers exposure.
Scaling tool: Environmental exposure: using EUSES software at https://ec.europa.eu/jrc/en/scientific-tool/european-union-system-evaluation-substances. consumer exposure: - If modelled with ECETOC TRAv3 at ECETOC-TR-114-ECETOC-TRA-v3-Background-rationale-for-the-improvements.pdf - If modelled with Consexpo 1.2.0 at ConsExpo | RIVM - Paint Products Fact Sheet and Do-It-Yourself Products Fact Sheet
Scaling instructions: https://www.rivm.nl/en/consexpo/fact-sheets
Scaling tool web link: https://consexpoweb.nl

10. ES 10: : Air Care applications by Professionals

10.1. Title section

Product category: Air care products (PC 3)
Sector of use: Other (SU 0), Building and construction work (SU 19)

Environment	
1: *Wide dispersive indoor use*	ERC 8a
Worker	
2: *Blending in open batch process*	PROC 5
3: *Brushing application*	PROC 10
4: *Spraying*	PROC 11
5: *Article treatment by dipping*	PROC 13

10.2. Conditions of use affecting exposure

10.2.1. Control of environmental exposure: *Wide dispersive indoor use* (ERC 8a)

Conditions and measures related to biological sewage treatment plant
Municipal sewage treatment plant (STP): Yes (Water: 67.46%)
Conditions and measures related to external treatment of waste (including article waste)
Dispose of waste product or used containers according to local regulations.

10.2.2. Control of worker exposure: *Blending in open batch process* (PROC 5)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 0.25 h/day
Technical and organisational conditions and measures
Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

10.2.3. Control of worker exposure: *Brushing application* (PROC 10)

Product (article) characteristics
Covers concentrations up to 100 %

Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 0.25 h/day
Technical and organisational conditions and measures
Provide specifically designed and maintained LEV (receiving hood type). Ensure effectiveness is at least 80%.
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

10.2.4. Control of worker exposure: *Spraying* (PROC 11)

Product (article) characteristics
Covers concentrations up to 25 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1 h/day
Technical and organisational conditions and measures
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Provide specifically designed and maintained LEV (receiving hood type). Ensure effectiveness is at least 80%.
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

10.2.5. Control of worker exposure: *Article treatment by dipping* (PROC 13)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 0.25 h/day
Technical and organisational conditions and measures
Provide a good standard of controlled ventilation (5 to 10 air changes per hour).

Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

10.3. Exposure estimation and reference to its source

10.3.1. Environmental release and exposure: *Wide dispersive indoor use* (ERC 8a)

Release route	Release rate	Release estimation method
Water	0.179 kg/day	ERC
Air	0.179 kg/day	ERC
Soil	0 kg/day	ERC

Protection target	Exposure estimate	RCR
Man via environment - Inhalation (systemic effects)	9.17E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	1.13E-4 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

10.3.2. Worker exposure: *Blending in open batch process* (PROC 5)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	1.477 mg/m³ (TRA Workers 3.0)	0.06
Dermal, systemic, long term	1.371 mg/kg bw/day (TRA Workers 3.0)	0.157
Combined, systemic, long term		0.216

10.3.3. Worker exposure: *Brushing application* (PROC 10)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	2.462 mg/m³ (TRA Workers 3.0)	0.1
Dermal, systemic, long term	2.743 mg/kg bw/day (TRA Workers 3.0)	0.313
Combined, systemic, long term		0.413

10.3.4. Worker exposure: *Spraying* (PROC 11)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	8.272 mg/m³ (TRA Workers 3.0)	0.335
Dermal, systemic, long term	1.286 mg/kg bw/day (TRA Workers 3.0)	0.147
Combined, systemic, long term		0.482

10.3.5. Worker exposure: *Article treatment by dipping* (PROC 13)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	1.477 mg/m³ (TRA Workers 3.0)	0.06

Route of exposure and type of effects	Exposure estimate	RCR
Dermal, systemic, long term	1.371 mg/kg bw/day (TRA Workers 3.0)	0.157
Combined, systemic, long term		0.216

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

Guidance: Analogue adaptations may be possible among the determinants driving environmental exposure. Analogue adaptations may be possible among the determinants driving workers exposure.
Scaling tool: Environmental exposure: using EUSES software at https://ec.europa.eu/jrc/en/scientific-tool/european-union-system-evaluation-substances. Workers exposure: See exposure modifiers in ECETOC TRAv3 at ECETOC-TR-114-ECETOC-TRA-v3-Background-rationale-for-the-improvements.pdf.

11. ES 11: Indoor air refreshing for general public

11.1. Title section

Product category: Air care products (PC 3)

Environment	
1: *Air refreshers indoor use*	ERC 8a
Consumer	
2: *1. Air refreshener aerosol/spray use*	PC 3
3: *2.,3.,4. Air refreshener diffusor applications*	PC 3

11.2. Conditions of use affecting exposure

11.2.1. Control of environmental exposure: *Air refreshers indoor use* (ERC 8a)

Conditions and measures related to external treatment of waste (including article waste)
Dispose of waste product or used containers according to local regulations.
Other conditions affecting environmental exposure
Municipal sewage treatment plant (STP): Yes (Water: 67.46%)

11.2.2. Control of consumer exposure: *1. Air refreshener aerosol/spray use* (PC 3)

Product (article) characteristics
Oral exposure is considered to be not relevant.
Covers concentrations up to 13 %
Assumes no dermal contact
Amount used (or contained in articles), frequency and duration of use/exposure
For each use event, covers use amounts up to 1 g/event
Exposure duration = 1 h/event
Covers use up to 1 events per day

11.2.3. Control of consumer exposure: *2.,3.,4. Air refreshener diffusor applications* (PC 3)

Product (article) characteristics
Covers concentrations up to 13 %
Assumes no dermal contact
Oral exposure is considered to be not relevant.
No spraying
Amount used (or contained in articles), frequency and duration of use/exposure
For each use event, covers use amounts up to 1 g/event
Exposure duration = 1 h/event
Covers use up to 1 events per day

11.3. Exposure estimation and reference to its source

11.3.1. Environmental release and exposure: *Air refreshers indoor use* (ERC 8a)

Release route	Release rate	Release estimation method
Water	2.61E-3 kg/day	Estimated release factor
Air	0.259 kg/day	Estimated release factor
Soil	0 kg/day	Estimated release factor

Protection target	Exposure estimate	RCR
Man via environment - Inhalation (systemic effects)	9.16E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	7.45E-5 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

11.3.2. Consumer exposure: *1. Air refreshener aerosol/spray use* (PC 3)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	4.062 mg/m³ (TRA Consumers 3.1)	0.55
Dermal, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01
Oral, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01
Combined, systemic, long term		0.55

11.3.3. Consumer exposure: *2.,3.,4. Air refreshener diffusor applications* (PC 3)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	4.062 mg/m³ (TRA Consumers 3.1)	0.55
Dermal, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01
Oral, systemic, long term	0 mg/kg bw/day (TRA Consumers 3.1)	< 0.01
Combined, systemic, long term		0.55

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

Guidance: Analogue adaptations may be possible among the determinants driving consumer exposure
Scaling tool: - If modelled with ECETOC TRAv3 at ECETOC-TR-114-ECETOC-TRA-v3-Background-rationale-for-the-improvements.pdf - If modelled with AISE React at Consumer safety exposure assessment - AISE

12. ES 12: Widespread use by professional workers; Use in Additives and Coalescents

12.1. Title section

Product category: Textile dyes and impregnating products (PC 34)
Sector of use: Agriculture, forestry, fishery (SU 1), Manufacture of food products (SU 4), Manufacture of textiles, leather, fur (SU 5), Manufacture of wood and wood products (SU 6a), Manufacture of pulp, paper and paper products (SU 6b), Manufacture of plastics products, including compounding and conversion (SU 12), Health services (SU 20)

Environment	
1: *Coatings indoor*	ERC 8a
Worker	
2: *Partly open batch process*	PROC 4
3: *Blending in open batch process*	PROC 5
4: *External Transfer Processes*	PROC 8a
5: *Internal Transfer Processes*	PROC 8b
6: *Roller Application or Brushing*	PROC 10
7: *Spraying*	PROC 11
8: *Article treatment by dipping*	PROC 13
9: *Laboratory Use*	PROC 15

12.2. Conditions of use affecting exposure

12.2.1. Control of environmental exposure: *Coatings indoor* (ERC 8a)

Conditions and measures related to biological sewage treatment plant
Municipal sewage treatment plant (STP): Yes (Water: 67.46%)
Conditions and measures related to external treatment of waste (including article waste)
Dispose of waste product or used containers according to local regulations.

12.2.2. Control of worker exposure: *Partly open batch process* (PROC 4)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1 h/day
Technical and organisational conditions and measures
Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with ‘basic’ employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure

Indoor use
Assumes process temperature up to 40 °C

12.2.3. Control of worker exposure: *Blending in open batch process* (PROC 5)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 0.25 h/day
Technical and organisational conditions and measures
Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

12.2.4. Control of worker exposure: *External Transfer Processes* (PROC 8a)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1 h/day
Technical and organisational conditions and measures
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Provide specifically designed and maintained LEV (receiving hood type). Ensure effectiveness is at least 80%.
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

12.2.5. Control of worker exposure: *Internal Transfer Processes* (PROC 8b)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 4 h/day
Technical and organisational conditions and measures
Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

12.2.6. Control of worker exposure: *Roller Application or Brushing* (PROC 10)

Product (article) characteristics
Covers concentrations up to 25 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 0.25 h/day
Technical and organisational conditions and measures
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Provide specifically designed and maintained LEV (receiving hood type). Ensure effectiveness is at least 80%.
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

12.2.7. Control of worker exposure: *Spraying* (PROC 11)

Product (article) characteristics
Covers concentrations up to 25 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 0.25 h/day

Technical and organisational conditions and measures
Provide specifically designed and maintained LEV (receiving hood type). Ensure effectiveness is at least 80%.
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Wear a respirator which reduces the air impurities by at least a factor of 10 (APF >= 10). For further specification, refer to section 8 of the SDS
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

12.2.8. Control of worker exposure: *Article treatment by dipping* (PROC 13)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 0.25 h/day
Technical and organisational conditions and measures
Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

12.2.9. Control of worker exposure: *Laboratory Use* (PROC 15)

Product (article) characteristics
Covers concentrations up to 100 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 4 h/day
Technical and organisational conditions and measures
Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via

contamination on hands.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

12.3. Exposure estimation and reference to its source

12.3.1. Environmental release and exposure: *Coatings indoor* (ERC 8a)

Release route	Release rate	Release estimation method
Water	0.038 kg/day	ERC
Air	0.038 kg/day	ERC
Soil	0 kg/day	ERC

Protection target	Exposure estimate	RCR
Man via environment - Inhalation (systemic effects)	9.17E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	8.22E-5 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

12.3.2. Worker exposure: *Partly open batch process* (PROC 4)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	2.954 mg/m³ (TRA Workers 3.0)	0.12
Dermal, systemic, long term	0.686 mg/kg bw/day (TRA Workers 3.0)	0.078
Combined, systemic, long term		0.198

12.3.3. Worker exposure: *Blending in open batch process* (PROC 5)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	1.477 mg/m³ (TRA Workers 3.0)	0.06
Dermal, systemic, long term	1.371 mg/kg bw/day (TRA Workers 3.0)	0.157
Combined, systemic, long term		0.216

12.3.4. Worker exposure: *External Transfer Processes* (PROC 8a)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	3.447 mg/m³ (TRA Workers 3.0)	0.14
Dermal, systemic, long term	1.371 mg/kg bw/day (TRA Workers 3.0)	0.157
Combined, systemic, long term		0.296

12.3.5. Worker exposure: *Internal Transfer Processes* (PROC 8b)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	8.863 mg/m³ (TRA Workers 3.0)	0.359
Dermal, systemic, long term	1.371 mg/kg bw/day (TRA Workers 3.0)	0.157
Combined, systemic, long term		0.516

12.3.6. Worker exposure: *Roller Application or Brushing* (PROC 10)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	1.034 mg/m³ (TRA Workers 3.0)	0.042
Dermal, systemic, long term	1.646 mg/kg bw/day (TRA Workers 3.0)	0.188
Combined, systemic, long term		0.23

12.3.7. Worker exposure: *Spraying* (PROC 11)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.591 mg/m³ (TRA Workers 3.0)	0.024
Dermal, systemic, long term	1.286 mg/kg bw/day (TRA Workers 3.0)	0.147
Combined, systemic, long term		0.171

12.3.8. Worker exposure: *Article treatment by dipping* (PROC 13)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	1.477 mg/m³ (TRA Workers 3.0)	0.06
Dermal, systemic, long term	1.371 mg/kg bw/day (TRA Workers 3.0)	0.157
Combined, systemic, long term		0.216

12.3.9. Worker exposure: *Laboratory Use* (PROC 15)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	4.432 mg/m³ (TRA Workers 3.0)	0.179
Dermal, systemic, long term	0.34 mg/kg bw/day (TRA Workers 3.0)	0.039
Combined, systemic, long term		0.218

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

Guidance: Analogue adaptations may be possible among the determinants driving environmental exposure. Analogue adaptations may be possible among the determinants driving workers exposure.
Scaling tool: Environmental exposure: using EUSES software at https://ec.europa.eu/jrc/en/scientific-tool/european-union-system-evaluation-substances. Workers exposure: See exposure modifiers in ECETOC TRAv3 at ECETOC-TR-114-ECETOC-TRA-v3-Background-rationale-for-the-improvements.pdf.

13. ES 13: Consumer use; Plant protection uses, aerosols indoor/outdoor

13.1. Title section

Product category: Biocidal Products (PC 8)

Environment	
1: *Co-formulant in insecticides*	ERC 8a
Consumer	
2: *ready-to-use insecticides for spraying plants indoor and outdoor*	PC 8

13.2. Conditions of use affecting exposure

13.2.1. Control of environmental exposure: *Co-formulant in insecticides* (ERC 8a)

Conditions and measures related to external treatment of waste (including article waste)
Dispose of waste product or used containers according to local regulations.
Other conditions affecting environmental exposure
Municipal sewage treatment plant (STP): Yes (Water: 67.46%)

13.2.2. Control of consumer exposure: *ready-to-use insecticides for spraying plants indoor and outdoor* (PC 8)

Product (article) characteristics
Covers concentrations up to 60 %
Amount used (or contained in articles), frequency and duration of use/exposure
For each use event, covers use amounts up to 137 g/event
Covers use up to 1 events per day
Exposure duration = 4 h/event
Other conditions affecting consumers exposure
Assumes that potential dermal contact is limited to hands.

13.3. Exposure estimation and reference to its source

13.3.1. Environmental release and exposure: *Co-formulant in insecticides* (ERC 8a)

Release route	**Release rate**	**Release estimation method**
Water	2.75E-3 kg/day	ERC
Air	2.75E-3 kg/day	ERC
Soil	0 kg/day	ERC

Protection target	**Exposure estimate**	**RCR**
Man via environment - Inhalation (systemic effects)	9.16E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	7.45E-5 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

13.3.2. Consumer exposure: *ready-to-use insecticides for spraying plants*

indoor and outdoor (PC 8)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.035 mg/m³ (ConsExpo)	< 0.01
Dermal, systemic, long term	0.36 mg/kg bw/day (ConsExpo)	0.115
Oral, systemic, long term	0.89 mg/kg bw/day (ConsExpo)	0.712
Combined, systemic, long term		0.832

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

Guidance: Analogue adaptations may be possible among the determinants driving environmental exposure.
Analogue adaptations may be possible among the determinants driving workers exposure.
Scaling tool: Environmental exposure: using EUSES software at https://ec.europa.eu/jrc/en/scientific-tool/european-union-system-evaluation-substances. consumer exposure: - If modelled with ECETOC TRAv3 at ECETOC-TR-114-ECETOC-TRA-v3-Background-rationale-for-the-improvements.pdf - If modelled with Consexpo 1.2.0 at ConsExpo | RIVM - Pest Control product Fact Sheet
Scaling instructions: https://www.rivm.nl/en/consexpo/fact-sheets
Scaling tool web link: https://consexpoweb.nl

14. ES 14: Professional use in disinfectants indoor

14.1. Title section

Product category: Biocidal Products (PC 8)
Sector of use: Agriculture, forestry, fishery (SU 1), Manufacture of food products (SU 4), Health services (SU 20)

Environment	
1: *professional indoor use of MMB as solvent in disinfectants*	ERC 8a
Worker	
2: *transfer of disinfectants*	PROC 8a
3: *spray application of disinfectants*	PROC 11
4: *application by dipping*	PROC 13
5: *application by wiping*	PROC 10
6: *Hand sanitizer, indoor use*	PROC 19

14.2. Conditions of use affecting exposure

14.2.1. Control of environmental exposure: *professional indoor use of MMB as solvent in disinfectants* (ERC 8a)

Conditions and measures related to biological sewage treatment plant
Municipal sewage treatment plant is assumed.

14.2.2. Control of worker exposure: *transfer of disinfectants* (PROC 8a)

Product (article) characteristics
Covers concentrations up to 10 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1 h/day
Technical and organisational conditions and measures
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

14.2.3. Control of worker exposure: *spray application of disinfectants* (PROC 11)

Product (article) characteristics
Covers concentrations up to 1 %
Liquid

Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1 h/day
Technical and organisational conditions and measures
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
Other conditions affecting workers exposure
Spraying with no or low compressed air use
Assumes process temperature up to 40 °C
Indoor use

14.2.4. Control of worker exposure: *application by dipping* (PROC 13)

Product (article) characteristics
Covers concentrations up to 10 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1 h/day
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

14.2.5. Control of worker exposure: *application by wiping* (PROC 10)

Product (article) characteristics
Covers concentrations up to 5 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 1 h/day
Technical and organisational conditions and measures
Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
Wear suitable gloves tested to EN374.; If skin contamination is expected to extend to other parts of the body, then these body parts should also be protected with impervious garments in a manner equivalent to those described for the hands.; For further specification, refer to section 8 of the SDS.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure

Indoor use
Assumes process temperature up to 40 °C

14.2.6. Control of worker exposure: *Hand sanitizer, indoor use* (PROC 19)

Product (article) characteristics
Covers concentrations up to 10 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 0.05 h/day
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Indoor use
Assumes process temperature up to 40 °C

14.3. Exposure estimation and reference to its source

14.3.1. Environmental release and exposure: *professional indoor use of MMB as solvent in disinfectants* (ERC 8a)

Release route	Release rate	Release estimation method
Water	0.014 kg/day	ERC
Air	0.014 kg/day	ERC
Soil	0 kg/day	ERC

Protection target	Exposure estimate	RCR
Man via environment - Inhalation (systemic effects)	9.17E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	7.69E-5 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

14.3.2. Worker exposure: *transfer of disinfectants* (PROC 8a)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	10.34 mg/m³ (TRA Workers 3.0)	0.419
Dermal, systemic, long term	1.645 mg/kg bw/day (TRA Workers 3.0)	0.188
Combined, systemic, long term		0.607

14.3.3. Worker exposure: *spray application of disinfectants* (PROC 11)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	6.893 mg/m³ (TRA Workers 3.0)	0.279
Dermal, systemic, long term	2.143 mg/kg bw/day (TRA Workers 3.0)	0.245
Combined, systemic, long term		0.524

14.3.4. Worker exposure: *application by dipping* (PROC 13)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	5.909 mg/m³ (TRA Workers 3.0)	0.239

Route of exposure and type of effects	Exposure estimate	RCR
Dermal, systemic, long term	1.645 mg/kg bw/day (TRA Workers 3.0)	0.188
Combined, systemic, long term		0.427

14.3.5. Worker exposure: *application by wiping* (PROC 10)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	1.477 mg/m³ (TRA Workers 3.0)	0.06
Dermal, systemic, long term	1.097 mg/kg bw/day (TRA Workers 3.0)	0.125
Combined, systemic, long term		0.185

14.3.6. Worker exposure: *Hand sanitizer, indoor use* (PROC 19)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	1.4 mg/m³ (ConsExpo, use is considered similar to consumer use)	0.057
Dermal, systemic, long term	0.06 mg/kg bw/day (ConsExpo, use is considered similar to consumer use)	< 0.01
Combined, systemic, long term		0.064

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

Guidance: Analogue adaptations may be possible among the determinants driving environmental exposure
Analogue adaptations may be possible among the determinants driving workers exposure
Scaling tool: environmental exposure: Using EUSES software at https://ec.europa.eu/jrc/en/scientific-tool/european-union-system-evaluation-substances. - If modelled with ECETOC TRAv3 at ECETOC-TR-114-ECETOC-TRA-v3-Background-rationale-for-the-improvements.pdf - If modelled with Consexpo at ConsExpo | RIVM

15. ES 15: Professional use in disinfectants outdoor

15.1. Title section

Product category: Biocidal Products (PC 8)
Sector of use: Agriculture, forestry, fishery (SU 1), Manufacture of food products (SU 4), Health services (SU 20)

Environment	
1: *professional outdoor use of MMB as solvent in hand sanitisers*	ERC 8d
Worker	
2: *Hand sanitizer, outdoor use*	PROC 19

15.2. Conditions of use affecting exposure

15.2.1. Control of environmental exposure: *professional outdoor use of MMB as solvent in hand sanitisers* (ERC 8d)

Conditions and measures related to biological sewage treatment plant
Municipal sewage treatment plant is assumed.

15.2.2. Control of worker exposure: *Hand sanitizer, outdoor use* (PROC 19)

Product (article) characteristics
Covers concentrations up to 5 %
Liquid
Amount used (or contained in articles), frequency and duration of use/exposure
Covers use up to 0.05 h/day
Conditions and measures related to personal protection, hygiene and health evaluation
Use suitable eye protection.
General measures (eye irritants); Use suitable eye protection.; Avoid direct eye contact with product, also via contamination on hands.
Other conditions affecting workers exposure
Outdoor use
Assumes process temperature up to 40 °C

15.3. Exposure estimation and reference to its source

15.3.1. Environmental release and exposure: *professional outdoor use of MMB as solvent in hand sanitisers* (ERC 8d)

Release route	**Release rate**	**Release estimation method**
Water	0.014 kg/day	ERC
Air	0.014 kg/day	ERC
Soil	2.75E-3 kg/day	ERC

Protection target	**Exposure estimate**	**RCR**
Man via environment - Inhalation (systemic effects)	9.17E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	7.69E-5 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

15.3.2. Worker exposure: *Hand sanitizer, outdoor use* (PROC 19)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	1.4 mg/m³ (ConsExpo, use is considered similar to consumer use)	0.057
Dermal, systemic, long term	0.83 mg/kg bw/day (ConsExpo, use is considered similar to consumer use)	0.095
Combined, systemic, long term		0.152

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

Guidance: Analogue adaptations may be possible among the determinants driving environmental exposure
Analogue adaptations may be possible among the determinants driving workers exposure
Scaling tool: environmental exposure: Using EUSES software at https://ec.europa.eu/jrc/en/scientific-tool/european-union-system-evaluation-substances. - If modelled with ECETOC TRAv3 at ECETOC-TR-114-ECETOC-TRA-v3-Background-rationale-for-the-improvements.pdf - If modelled with Consexpo at ConsExpo | RIVM

16. ES 16: Consumer use of disinfectants indoor

16.1. Title section

Product category: Biocidal Products (PC 8)

Environment	
1: *consumer use of disinfectants indoor*	ERC 8a
Consumer	
2: *consumer use of hand sanitizers*	PC 8
3: *consumer use - surface disinfection by wiping*	PC 8

16.2. Conditions of use affecting exposure

16.2.1. Control of environmental exposure: *consumer use of disinfectants indoor* (ERC 8a)

Other conditions affecting environmental exposure
Municipal sewage treatment plant is assumed.

16.2.2. Control of consumer exposure: *consumer use of hand sanitizers* (PC 8)

Product (article) characteristics
Concentration of the substance in the product: <= 5 %
Covers concentrations up to 10 %
No spraying
Amount used (or contained in articles), frequency and duration of use/exposure
Assumes product amount in contact to skin
Covers use up to 3 events per day
For each use event, covers use amounts up to g/event
Exposure duration = h/event
Other conditions affecting consumers exposure
Assumes that potential dermal contact is limited to hands.

16.2.3. Control of consumer exposure: *consumer use - surface disinfection by wiping* (PC 8)

Product (article) characteristics
Covers concentrations up to 10 %
No spraying
Amount used (or contained in articles), frequency and duration of use/exposure
Duration of application: = 25 minutes
For each use event, covers use amounts up to 11 g/event
Exposure duration = 2 h/event
Covers use up to 3 events per day
Other conditions affecting consumers exposure
Assumes that potential dermal contact is limited to palm of one hand

16.3. Exposure estimation and reference to its source

16.3.1. Environmental release and exposure: *consumer use of disinfectants indoor* (ERC 8a)

Release route	Release rate	Release estimation method
Water	0.014 kg/day	ERC
Air	0.014 kg/day	ERC
Soil	0 kg/day	ERC

Protection target	Exposure estimate	RCR
Man via environment - Inhalation (systemic effects)	9.17E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	7.69E-5 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

16.3.2. Consumer exposure: *consumer use of hand sanitizers* (PC 8)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.028 mg/m³ (ConsExpo)	< 0.01
Dermal, systemic, long term	1.7 mg/kg bw/day (ConsExpo)	0.543
Oral, systemic, long term	0.05 mg/kg bw/day (TRA Consumers 3.1)	0.04
Combined, systemic, long term		0.587

16.3.3. Consumer exposure: *consumer use - surface disinfection by wiping* (PC 8)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	0.23 mg/m³ (ConsExpo)	0.031
Dermal, systemic, long term	0.073 mg/kg bw/day (ConsExpo)	0.023
Oral, systemic, long term	7.3E-3 mg/kg bw/day (ConsExpo)	< 0.01
Combined, systemic, long term		0.06

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

Guidance: Analogue adaptations may be possible among the determinants driving environmental exposure. Analogue adaptations may be possible among the determinants driving workers exposure.
Scaling tool: Environmental exposure: using EUSES software at https://ec.europa.eu/jrc/en/scientific-tool/european-union-system-evaluation-substances. consumer exposure: - If modelled with ECETOC TRAv3 at ECETOC-TR-114-ECETOC-TRA-v3-Background-rationale-for-the-improvements.pdf - If modelled with Consexpo 1.2.0 at ConsExpo | RIVM - Cosmetics Fact Sheet
Scaling instructions: https://www.rivm.nl/en/consexpo/fact-sheets
Scaling tool web link: https://consexpoweb.nl

17. ES 17: Consumer use of hand sanitisers outdoor

17.1. Title section

Product category: Biocidal Products (PC 8)

Environment	
1: *consumer use of disinfectants outdoor*	ERC 8d
Consumer	
2: *consumer use of hand sanitizers*	PC 8

17.2. Conditions of use affecting exposure

17.2.1. Control of environmental exposure: *consumer use of disinfectants outdoor* (ERC 8d)

Other conditions affecting environmental exposure
Municipal sewage treatment plant is assumed.

17.2.2. Control of consumer exposure: *consumer use of hand sanitizers* (PC 8)

Product (article) characteristics
Concentration of the substance in the product: <= 5 %
Covers concentrations up to 10 %
No spraying
Amount used (or contained in articles), frequency and duration of use/exposure
Assumes product amount in contact to skin
Covers use up to 3 events per day
For each use event, covers use amounts up to 1 g/event
Exposure duration = 0.01 h/event
Information and behavioral advice for consumers
Outdoor use
Other conditions affecting consumers exposure
Assumes that potential dermal contact is limited to hands.

17.3. Exposure estimation and reference to its source

17.3.1. Environmental release and exposure: *consumer use of disinfectants outdoor* (ERC 8d)

Release route	**Release rate**	**Release estimation method**
Water	0.014 kg/day	ERC
Air	0.014 kg/day	ERC
Soil	2.75E-3 kg/day	ERC

Protection target	**Exposure estimate**	**RCR**
Man via environment - Inhalation (systemic effects)	9.17E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	7.69E-5 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

17.3.2. Consumer exposure: *consumer use of hand sanitizers* (PC 8)

Route of exposure and type of effects	Exposure estimate	RCR
Inhalation, systemic, long term	4.3E-3 mg/m³ (ConsExpo)	< 0.01
Dermal, systemic, long term	1.7 mg/kg bw/day (ConsExpo)	0.543
Oral, systemic, long term	0.05 mg/kg bw/day (TRA Consumers 3.1)	0.04
Combined, systemic, long term		0.584

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

Guidance: Analogue adaptations may be possible among the determinants driving environmental exposure. Analogue adaptations may be possible among the determinants driving workers exposure.
Scaling tool: Environmental exposure: using EUSES software at https://ec.europa.eu/jrc/en/scientific-tool/european-union-system-evaluation-substances. consumer exposure: - If modelled with ECETOC TRAv3 at ECETOC-TR-114-ECETOC-TRA-v3-Background-rationale-for-the-improvements.pdf - If modelled with Consexpo 1.2.0 at ConsExpo | RIVM - Cosmetics Fact Sheet
Scaling instructions: https://www.rivm.nl/en/consexpo/fact-sheets
Scaling tool web link: https://consexpoweb.nl

18. ES 18: Consumer use; Cosmetics

18.1. Title section

Product category: Perfumes, Fragrances (PC 28), Cosmetics, personal care products (PC 39)

Environment	
1: *Cosmetics*	ERC 8d, ERC 8a
Consumer	
2: *Consumer use of cosmetics*	PC 39
3: *Consumer use of fragrances*	PC 28

18.2. Conditions of use affecting exposure

18.2.1. Control of environmental exposure: *Cosmetics* (ERC 8d, ERC 8a)

Conditions and measures related to external treatment of waste (including article waste)
Dispose of waste product or used containers according to local regulations.
Other conditions affecting environmental exposure
Municipal sewage treatment plant (STP): Yes (Water: 67.46%)

18.2.2. Control of consumer exposure: *Consumer use of cosmetics* (PC 39)

18.2.3. Control of consumer exposure: *Consumer use of fragrances* (PC 28)

18.3. Exposure estimation and reference to its source

18.3.1. Environmental release and exposure: *Cosmetics* (ERC 8d)

Release route	Release rate	Release estimation method
Water	0.027 kg/day	ERC
Air	0.027 kg/day	ERC
Soil	5.5E-3 kg/day	ERC

Protection target	Exposure estimate	RCR
Man via environment - Inhalation (systemic effects)	9.17E-6 mg/m³ (EUSES 2.1.2)	< 0.01
Man via environment - Oral	7.99E-5 mg/kg bw/day (EUSES 2.1.2)	< 0.01
Man via environment - combined routes		< 0.01

18.3.2. Consumer exposure: *Consumer use of cosmetics* (PC 39)

18.3.3. Consumer exposure: *Consumer use of fragrances* (PC 28)

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

Guidance: Uses in cosmetics/personal care products, perfumes and fragrances; In accordance to the Article 14 (5b) of the REACh Regulation (EC) No 1907/2006, exposure estimation and risk characterisation for human health does not need to be performed for end uses in cosmetic products within the scope of Directive 76/768/EEC.
Scaling tool: Environmental exposure: using EUSES software at https://ec.europa.eu/jrc/en/scientific-tool/european-union-system-evaluation-substances.