

## Varnostni list BIO-RINZAFFO

Varnostni list z dne 10/03/2023 revizija 2

Pozor: oštevilčenje se znova začne od 1.



### ODDELEK 1: Identifikacija snovi/zmesi in družbe/podjetja

#### 1.1 Identifikator izdelka

Identifikacija pripravka:

Komercialno ime: BIO-RINZAFFO

Komercialna koda: 1304

UFI: SYK3-X0M0-M00J-7R0J

#### 1.2 Pomembne identificirane uporabe snovi ali zmesi in odsvetovane uporabe

Priporočena uporaba: Bio-obrizzg na osnovi apna in pucolana, brez cementa, za notranje in zunanje površine

#### 1.3 Podrobnosti o dobavitelju varnostnega lista

Dobavitelj FASSA Srl

Via Lazzaris, 3 - 31027 Spresiano (TV) - ITALY

Tel. +39 0422 7222

Fax +39 0422 887509

Odgovorni: laboratorio.spresiano@fassabortolo.it

#### 1.4 Telefonska številka za nujne primere

112 - Center za obveščanje (na voljo 24 ur)

### ODDELEK 2: Določitev nevarnosti



#### 2.1 Razvrstitev snovi ali zmesi

##### Uredba (ES) št. 1272/2008 (CLP)

Eye Irrit. 2 Povzroča hudo draženje oči.

Nevarnosti fizikalno-kemijskih lastnosti za zdravje ljudi in za okolje:

Ni drugih tveganj

#### 2.2 Elementi etikete

##### Uredba (ES) št. 1272/2008 (CLP)

##### Piktogrami za nevarnost in Opozorilna beseda



Pozor

#### Stavki o nevarnosti

H319 Povzroča hudo draženje oči.

#### Previdnostni stavki

P101 Če je potreben zdravniški nasvet, mora biti na voljo posoda ali etiketa proizvoda.

P102 Hraniti zunaj dosega otrok.

P264 Po uporabi temeljito umiti roke.

P280 Nadenite si zaščitne rokavice in zaščitite oči/obraz.

P305+P351+P338 PRI STIKU Z OČMI: Previdno izpirati z vodo nekaj minut. Odstranite kontaktne leče, če jih imate in če to lahko storite brez težav. Nadaljujte z izpiranjem.

P337+P313 Če draženje oči ne preneha: poiščite zdravniško pomoč/oskrbo.

P501 Odstraniti vsebino/posodo v skladu z nacionalnimi predpisi.

#### Posebne določbe v skladu s Prilogo XVII uredbe REACH in poznejše spremembe:

Nobeden

#### 2.3 Druge nevarnosti

Ni snovi PBT, vPvB ali endokrinih motilcev v

koncentraciji > = 0,1%.

Za informacije v zvezi z vdihavanjem Kristalni silicijev dioksid, kremen (vdihljiva frakcija), glejte poglavje 11.  
Ni drugih tveganj

### ODDELEK 3: Sestava/podatki o sestavinah

#### 3.1 Snovi

ni znano

#### 3.2 Zmesi

Identifikacija pripravka: BIO-RINZAFFO

**Nevarne sestavine, skladno z Uredbo CLP in njeno razvrstitvijo:**

Količina	Ime	Ident. št.	Razvrstitev	Registracijska številka
≥1 - <3 %	Hidrirano apno	CAS:1305-62-0 EC:215-137-3	Skin Irrit. 2, H315; Eye Dam. 1, H318; STOT SE 3, H335	01-2119475151-45-xxxx
≥0.0015 - <0.005 %	Kristalni silicijev dioksid, kremen (vdihljiva frakcija)	CAS:14808-60-7 EC:238-878-4	STOT RE 1, H372	Izvezeti

Za informacije o kristalnem siliciju, kremenu (vdihljiva frakcija) glejte razdelek 8.1.

### ODDELEK 4: Ukrepi za prvo pomoč

#### 4.1 Opis ukrepov za prvo pomoč

V primeru stika s kožo:

Kontaminirana oblačila takoj slecite in jih na varen način odstranite.

V primeru stika s proizvodom in tudi v primeru suma morebitnega stika, dele telesa takoj umijte z veliko količino tekoče vode in milom.

Umijte celotno telo (tuširanje ali kopel).

V primeru stika z očmi:

V primeru stika z očmi dovolj dolgo in z odprtimi očesnimi vekami izpirajte z obilo vode, nato poiščite pomoč zdravnika oftalmologa.

Poškodovano oko zaščitite.

V primeru zaužitja:

Po zaužitju ne izzivati bruhanja, takoj poiskati zdravniško pomoč in pokazati varnostni list in nalepko.

V primeru vdihavanja:

Prizadeto osebo umaknite na svež zrak in pustite počivati na toplem.

#### 4.2 Najpomembnejši simptomi in učinki, akutni in zapozneli

Simptomi in učinki so taki, kot je pričakovano glede na nevarnosti, kar je prikazano v 2. razdelku.

#### 4.3 Navedba kakršne koli takojšnje medicinske oskrbe in posebnega zdravljenja

V primeru nesreče ali slabega počutja takoj poiščite zdravniško pomoč (če je mogoče, pokažite navodila za uporabo ali varnostni list).

### ODDELEK 5: Protipožarni ukrepi

#### 5.1 Sredstva za gašenje

Ustrezna sredstva za gašenje:

CO<sub>2</sub>, gasilni aparat na prah, pena, pršenje z vodo.

Proizvod ni vnetljiv

Sredstva za gašenje, ki se jih iz varnostnih razlogov ne sme uporabljati:

Vodni curki

#### 5.2 Posebne nevarnosti v zvezi s snovjo ali zmesjo

Pri gorenju nastajajo težki dimni plini.

V primeru požara in/ali eksplozije ne vdihavajte dima.

#### 5.3 Nasvet za gasilce

Uporabiti ustrezne dihalne naprave.

Ločeno zberite kontaminirano vodo, uporabljeno za gašenje požara. Ne je izpustiti v kanalizacijo.

Če je to varno izvedljivo, nepoškodovane vsebnike umaknite iz neposredno ogroženega območja.

### ODDELEK 6: Ukrepi o nenamernih izpustih

#### 6.1 Osebni varnostni ukrepi, zaščitna oprema in postopki v sili

Nosite osebno varovalno opremo.

Osebe umaknite na varno mesto.

Glejte v točki 7 in 8 navedene zaščitne ukrepe.

Suho sesanje s primerno opremo.

#### 6.2 Okoljevarstveni ukrepi

Preprečite vstop v tla/podtalnico. Preprečite razlitje v površinske vode ali v kanalizacijo.

V primeru puščanja plina ali razlitja v vodne tokove, tla ali kanalizacijo obvestite pristojne organe.

### 6.3 Metode in materiali za zadrževanje in čiščenje

Po pobiranju z vodo izperite območje in prizadete materiale.

Kontaminirano vodo za pranje shranite in odstranite.

V primeru nenamernega razlitja proizvoda odstranite s suhim sesanjem.

### 6.4 Sklicevanje na druge oddelke

Glejte tudi naslova 8 in 13

## ODDELEK 7: Ravnanje in skladiščenje

### 7.1 Varnostni ukrepi za varno ravnanje

Izogibajte se stiku s kožo in očmi ter vdihavanju prahu.

Izogibajte se postopkom, ki povzročajo razširjanje prahu.

Prazne vsebnike ne uporabite dokler niso očiščeni.

Pred postopki prenosa se prepričajte, da v vsebnikih ni ostankov nezdružljivih materialov.

Nasveti o splošni higieni dela:

Kontaminirana oblačila se mora pred vstopom v jedilnico zamenjati.

Med delom ne jejte in ne pijte.

Glejte tudi naslov 8 o priporočeni varovalni opremi.

### 7.2 Pogoji za varno skladiščenje, vključno z nezdružljivostjo

Hranite stran od hrane, pijač in krme.

Inkompaktibilne snovi:

Glejte točko 10.5

Navodila za prostore:

Primerno zračeni prostori.

### 7.3 Posebne končne uporabe

Priporočila

Glejte točko 1.2

Specifične rešitve za industrijski sektor

Nobena posebna uporaba

## ODDELEK 8: Nadzor izpostavljenosti/osebna zaščita

### 8.1 Parametri nadzora

#### Seznam sestavin z OEL vrednostmi

	Način izpostavljenosti na delovnem mestu	Država	Dolgotrajna mg/m <sup>3</sup>	Dolgotrajne jša ppm	Kratkotrajna mg/m <sup>3</sup>	Kratkotrajna ppm	Lastnosti	Opomb
Hidrirano apno CAS: 1305-62-0	ACGIH		5.000					Eye, URT and skin irr
	EU		1		4			Respirable fraction
	MAK	AUSTRIA	1.000		4.000			Inhalable fraction
	VLEP	BELGIUM	1.000		4.000			Respirable fraction
	VLEP	FRANCE	1.000		4.000		Informativen	Respirable fraction
	AGW	GERMANY	1.000		2.000			Inhalable fraction
	MAK	GERMANY	1.000		2.000			Inhalable fraction
	ÁK	HUNGARY	5.000					
	VLEP	ITALY	1.000		2.000			Respirable fraction
	NDS	POLAND	1.000		4.000			Respirable fraction
	VLEP	ROMANIA	1.000		4.000			Respirable fraction
	VLA	SPAIN	1.000		4.000			
	SUVA	SWITZERLAND	1.000		4.000			Inhalable fraction
	WEL	U.K.	1.000					Inhalable fraction
	VLE	PORTUGAL	1.000		4.000			Respirable fraction
	GVI	CROATIA	1.000		4.000			Respirable fraction

Kristalni silicijev dioksid, kremen (vdihljiva frakcija) CAS: 14808-60-7	MV	SLOVENIA	1.000	4.000	
	TLV	CZECHIA	1.000	4.000	Respirable fraction
	TLV	BULGARIA	1.000	4.000	Respirable fraction
	ACGIH		0.025		(R), A2 - Pulm fibrosis, lung cancer
	EU		0.1		
	MAK	AUSTRIA	0.050		
	VLEP	FRANCE	0.100		Respirable aerosol
	ÁK	HUNGARY	0.150		Respirable aerosol
	NDS	POLAND	0.100		
	VLA	SPAIN	0.050		
	SUVA	SWITZERLAND	0.150		Respirable aerosol
		D			
	MAC	NETHERLAND	0.075		Respirable dust
		S			
	GVI	CROATIA	0.100		
	MV	SLOVENIA	0.150		
	IPRV	LITHUANIA	0.100		

#### Mejna vrednost izpostavljenosti po PNEC

	PNEC Omejit	Način izpostavitve	Pogostost izpostavitve	Opombe
Hidrirano apno CAS: 1305-62-0	0.49 mg/cm <sup>2</sup>	Sladka voda		
	0.32 mg/cm <sup>2</sup>	Morska voda		
	1080 mg/kg	Tla (kmetijska)		
	3 mg/cm <sup>2</sup>	Mikroorganizmi v čistilnih napravah (STP)		

#### Izpeljane vrednosti brez učinka. (DNEL)

	Industrijski delavec	Strokovni delavec	Uporabnik	Način izpostavitve	Pogostost izpostavitve	Opombe
Hidrirano apno CAS: 1305-62-0	4 mg/m <sup>3</sup>	4 mg/m <sup>3</sup>	4 mg/m <sup>3</sup>	Z vdihavanje m, človek	Kratkotrajna, lokalni učinek	
	1 mg/m <sup>3</sup>	1 mg/m <sup>3</sup>	1 mg/m <sup>3</sup>	Z vdihavanje m, človek	Dolgotrajna, lokalni učinek	

Pri postopku ocenjevanja tveganja priporočamo, da upoštevate mejne vrednosti poklicne izpostavljenosti, ki jih ACGIH predvideva za inertni prah, ki ni drugače razvrščen (PNOC vdihljiva frakcija: 3 mg/mc; PNOC vdihljiva frakcija: 10 mg/mc). V primeru prekoračenja teh meja priporočamo uporabo filtra tipa P, katerega razred (1, 2 ali 3) mora biti izbran na podlagi rezultata ocenjevanja tveganja.

#### 8.2 Nadzor izpostavljenosti

Poskrbite za ustrezno prezračevanje. Kadar je to izvedljivo, je to mogoče doseči z uporabo nadomestnega prezračevanja in dobrim splošnim vsesavanjem.

Zaščita oči:

Uporabite zaprt obrazni ščitnik, ne uporabljajte očal.

Zaščita kože:

Uporabljajte oblačila, primerna za popolno zaščito kože glede na dejavnost in izpostavljenost (EN 14605/EN 13982), npr. delovni kombinezon, predpasnik, zaščitna obutev, primerna oblačila.

Zaščita rok:

Ni materiala ali kombinacije materialov za rokavice, ki bi lahko zagotovili neomejeno odpornost na katero koli kombinacijo kemikalij ali proizvodov.

Za daljše ali večkratno rokovanje uporabite rokavice, odporne na kemikalije.

NBR (Nitrilkaučuk): debelina  $\geq$  0.4 mm; permeacijski čas  $\geq$  480 min.; FKM (Fluórkaučuk): debelina  $\geq$  0.4 mm; permeacijski

čas  $\geq$  480 min.

Izbira primernih rokavic ni odvisna samo od materiala, temveč tudi od drugih kakovostnih lastnosti, ki se razlikujejo od enega do drugega proizvajalca, in od načinov ter časov uporabe mešanice.

Zaščita dihalnih poti:

Če so delavci izpostavljeni koncentracijam nad mejnimi vrednostmi izpostavljenosti, morajo uporabljati primerne, certificirane dihalne aparate.

Filtrirna naprava za prah (EN 143): maska s filtrom P2.

Nadzor izpostavljenosti okolja:

Glejte točko 6.2

Higienski in tehnični ukrepi

Glejte poglavje 7.

---

## ODDELEK 9: Fizikalne in kemijske lastnosti

### 9.1 Podatki o osnovnih fizikalnih in kemijskih lastnostih

Izgled: Prah

Barva: bel

Vonj: brez vonja

Tališče/ledišče: N.D.

Točka začetka vretja in interval vretja: N.D.

Vnetljivost: ni znano

Zgornja/spodnja meja vnetljivosti ali eksplozivnosti: N.D.

Plamenišče: ni znano

Temperatura samovžiga: N.D.

Temperatura razgradnje: N.D.

pH:  $\geq 11.50 \leq 12.50$  ( 50% v vodni disperziji )

Kinematična viskoznost: ni znano

Gustota: 1200-1300 kg/m<sup>3</sup> ( Interna metoda )

Gostota hlapov: N.A.

Parni tlak: N.D.

Topnost v vodi: delno topno

Topnost v olju: ni znano

Porazdelitveni koeficient (n-oktanol/voda): ni znano

#### Lastnosti delcev:

Na podlagi razpoložljivih podatkov izdelek ne vsebuje nanomaterialov.

### 9.2 Drugi podatki

Prevodnost: N.D.

Eksplozivne lastnosti: N.D.

Oksidativne lastnosti: N.D.

Hitrost izparevanja: ni znano

---

## ODDELEK 10: Obstočnost in reaktivnost

### 10.1 Reaktivnost

Stabilna v normalnih pogojih

### 10.2 Kemijska stabilnost

Stabilna v normalnih pogojih

### 10.3 Možnost poteka nevarnih reakcij

Nobeden.

### 10.4 Pogoji, ki se jim je treba izogniti

Izdelek se boji vlage. Shranjujte v suhih prostorih.

### 10.5 Nezdružljivi materiali

Nobeno posebej.

Glejte točko 10.3

### 10.6 Nevarni produkti razgradnje

Nobena.

V primeru pravilnega skladiščenja in ravnanja ne pride do razvoja nevarnih produktov razgradnje.

Glejte točko 5.2

---

## ODDELEK 11: Toksikološki podatki

### 11.1 Podatki o razredih nevarnosti, kakor so opredeljeni v Uredbi (ES) št. 1272/2008

#### Toksikološki podatki izdelka:

a) akutna strupenost

Ni klasificirano

	Na podlagi razpoložljivih podatkov merila za razvrstitev niso izpolnjena.
b) jedkost za kožo/draženje kože	Ni klasificirano
	Na podlagi razpoložljivih podatkov merila za razvrstitev niso izpolnjena.
c) resne okvare oči/draženje	Proizvod je razvrščen: Eye Irrit. 2(H319)
d) preobčutljivost pri vdihavanju in preobčutljivost kože	Ni klasificirano
	Na podlagi razpoložljivih podatkov merila za razvrstitev niso izpolnjena.
e) mutagenost za zarodne celice	Ni klasificirano
	Na podlagi razpoložljivih podatkov merila za razvrstitev niso izpolnjena.
f) rakotvornost	Ni klasificirano
	Na podlagi razpoložljivih podatkov merila za razvrstitev niso izpolnjena.
g) strupenost za razmnoževanje	Ni klasificirano
	Na podlagi razpoložljivih podatkov merila za razvrstitev niso izpolnjena.
h) STOT - enkratna izpostavljenost	Ni klasificirano
	Na podlagi razpoložljivih podatkov merila za razvrstitev niso izpolnjena.
i) STOT - ponavljajoča se izpostavljenost	Ni klasificirano
	Na podlagi razpoložljivih podatkov merila za razvrstitev niso izpolnjena.
j) nevarnost pri vdihavanju	Ni klasificirano
	Na podlagi razpoložljivih podatkov merila za razvrstitev niso izpolnjena.

#### Toksikološki podatki glavnih snovi, ki jih najdemo v izdelku:

Hidrirano apno	a) akutna strupenost	LD50 Oralno Podgana > 2000 mg/kg
		LD50 Koža Zajec > 2500 mg/kg

## 11.2 Podatki o drugih nevarnostih

#### Lastnosti endokrinih motilcev:

Ni endokrinih motilcev v koncentraciji  $\geq 0,1\%$ .

Informacije o kristalnem kremenu:

Mednarodna agencija za raziskave raka je izjavila, da kristalni kremen, ki se vdihuje v delovnih okoljih, lahko pri ljudeh povzroči pljučnega raka. Vendar je ob tem poudarila, da ne bi smeli biti obtoženi vseh industrijskih okolij in tudi ne vseh vrst kristalnega kremenca. Leta 2003 je Znanstveni odbor EU za meje poklicne izpostavljenosti izjavil, da je glavni učinek vdihavanja vdihljivega prahu kristalnega kremenca na ljudi silikoza. Obstaja dovolj informacij, na podlagi katerih je mogoče sklepati, da je relativno tveganje za pljučnega raka večje pri ljudeh, obolelih za silikozo. Zaščito delavcev bi zagotovili s spoštovanjem sedanjih mejnih vrednosti poklicne izpostavljenosti. Poleg tega morajo biti delavci ustrezno usposobljeni za pravilno uporabo in ravnanje s tem izdelkom.

## ODDELEK 12: Ekološki podatki

Uporabljajte v skladu z dobrimi delovnimi navadami, izogibajte se odlaganju izdelka v okolju.

### 12.1 Strupenost

Ekotoksikološki podatki:

#### Ekotoksikoloških lastnosti izdelka

Ni razvrščeno kot nevarno za okolje

Za izdelek ni razpoložljivih podatkov

#### Seznam sestavin z ekotoksikološkimi lastnostmi

Sestavina	Ident. št.	Ekotoksikološki podatki
Hidrirano apno	CAS: 1305-62-0 - EINECS: 215-137-3	a) akutna strupenost za vodno okolje : LC50 Sladkovodne ribe 50.6 mg/l 96h  a) akutna strupenost za vodno okolje : EC50 Sladkovodni nevretenčarji 49.1 mg/l 48h  a) akutna strupenost za vodno okolje : EC50 Sladkovodne alge 184.57 mg/l 72h  b) kronična strupenost za vodno okolje : NOEC Morske nevretenčarje 32 mg/l - 14d  b) kronična strupenost za vodno okolje : NOEC Sladkovodne alge 48 mg/l 72h a) akutna strupenost za vodno okolje : LC50 Morske ribe 457 mg/l 96h a) akutna strupenost za vodno okolje : LC50 Morske nevretenčarje 158 mg/l 96h

- d) strupenost za zemljo : NOEC Makroorganizme v tleh 2000 mg/kg  
d) strupenost za zemljo : NOEC Mikroorganizme v tleh 12000 mg/kg  
e) strupenost za rastline : NOEC 1080 mg/kg

## 12.2 Obstočnost in razgradljivost

ni znano

## 12.3 Zmožnost kopičenja v organizmih

ni znano

## 12.4 Mobilnost v tleh

ni znano

## 12.5 Rezultati ocene PBT in vPvB

Na podlagi razpoložljivih podatkov, preparat ne vsebuje snovi PBT/vPvB v procentu  $\geq 0.1\%$ .

## 12.6 Lastnosti endokrinih motilcev

Ni endokrinih motilcev v koncentraciji  $> = 0,1\%$ .

## 12.7 Drugi škodljivi učinki

ni znano

---

## ODDELEK 13: Odstranjevanje

### 13.1 Metode ravnanja z odpadki

Če je mogoče, predelajte. Ravnajte se po lokalnih in državnih normah.

Ne dopustite, da pride v kanalizacijo ali vodne poti.

Odstraniti posode, ki jih kontaminira izdelka v skladu z lokalnimi ali nacionalnimi predpisi.

---

## ODDELEK 14: Podatki o prevozu

Blago ni nevarno smislu normativ o transportu.

### 14.1 Številka ZN in številka ID

ni znano

### 14.2 Pravilno odpremno ime ZN

ni znano

### 14.3 Razredi nevarnosti prevoza

ni znano

### 14.4 Skupina embalaže

ni znano

### 14.5 Nevarnosti za okolje

ni znano

### 14.6 Posebni previdnostni ukrepi za uporabnika

ni znano

Cestni in železniški transport (ADR-RID):

ni znano

Zračni transport (IATA):

ni znano

Morski transport (IMDG):

ni znano

### 14.7 Pomorski prevoz v razsutem stanju v skladu z instrumenti IMO

ni znano

---

## ODDELEK 15: Zakonsko predpisani podatki

### 15.1 Predpisi/zakonodaja o zdravju, varnosti in okolju, specifični za snov ali zmes

Dir. 98/24/ES (Varovanje delavcev pred tveganji zaradi izpostavljenosti kemičnim snovem pri delu)

Dir. 2000/39/ES (mejne vrednosti za poklicno izpostavljenost)

Direktiva 2010/75/EU

Uredba (ES) št. 1907/2006 (REACH)

Uredba (ES) št. 1272/2008 (CLP)

Uredba (ES) št. 790/2009 (1. ATP CLP) in (EU) št. 758/2013

Uredba (EU) 2020/878

Uredba (EU) št. 286/2011 (2. ATP CLP)

Uredba (EU) št. 618/2012 (3. ATP CLP)

Uredba (EU) št. 487/2013 (4. ATP CLP)  
Uredba (EU) št. 944/2013 (5. ATP CLP)  
Uredba (EU) št. 605/2014 (6. ATP CLP)  
Uredba (EU) 2015/1221 (7. ATP CLP)  
Uredba (EU) 2016/918 (8. ATP CLP)  
Uredba (EU) 2016/1179 (9. ATP CLP)  
Uredba (EU) 2017/776 (10. ATP CLP)  
Uredba (EU) 2018/669 (11. ATP CLP)  
Uredba (EU) 2018/1480 (13. ATP CLP)  
Uredba (EU) 2019/521 (12. ATP CLP)  
Uredba (EU) 2020/217 (14. ATP CLP)  
Uredba (EU) 2020/1182 (15. ATP CLP)  
Uredba (EU) 2021/643 (16. ATP CLP)  
Uredba (EU) 2021/849 (17. ATP CLP)  
Uredba (EU) 2022/692 (18. ATP CLP)

**Omejitve, povezane z izdelkom ali vsebovanimi snovmi, v skladu s Prilogo XVII Uredbe (ES) 1907/2006 (REACH) in poznejše spremembe:**

Obmedzenia vo vzťahu s výrobkom: Nobeden

Obmedzenia vo vzťahu s obsiahnutými látkami: 28, 72, 75

**Določbe v zvezi z direktivo EU 2012/18 (Seveso III)**

Nobena

**Uredba (EU) št. 649/2012 (uredba PIC)**

Snovi niso navedene

**Nemški razred nevarnosti za vodo.**

1: Low hazard to waters

**SVHC snovi:**

Na podlagi razpoložljivih podatkov, preparat ne vsebuje snovi SVHC v procentu  $\geq 0.1\%$ .

Da bi proizvajalcem in uporabnikom izdelkov in materialov, ki vsebujejo kristalni kremen, zagotovili ustrezna navodila, smo pripravili priročnik o ravnanju z vdihljivim kristalnim kremenom in o varni uporabi izdelkov, ki vsebujejo kristalni kremen, na delovnem mestu. Več o tem: <http://www.nepsi.eu>: Sporazum o zdravstveni zaščiti delavcev s pravilnim ravnanjem in uporabo kristalnega kremena ter izdelkov, ki ga vsebujejo (2006/C 279/02).

**15.2 Ocena kemijske varnosti**

Ocena kemijske varnosti ni bila opravljena za mešanice

---

**ODDELEK 16: Drugi podatki**

Številka	Opis
H315	Povzroča draženje kože.
H318	Povzroča hude poškodbe oči.
H319	Povzroča hudo draženje oči.
H335	Lahko povzroči draženje dihalnih poti.
H372	V primeru dolgotrajnega ali ponovljenega vdihavanja povzroča poškodbe notranjih organov.

Številka	Razred in kategorija nevarnosti	Opis
3.2/2	Skin Irrit. 2	Draženje kože, Kategorija 2
3.3/1	Eye Dam. 1	Hude poškodbe oči, Kategorija 1
3.3/2	Eye Irrit. 2	Draženje oči, Kategorija 2
3.8/3	STOT SE 3	Specifična strupenost za ciljne organe (STOT) – enkratna izpostavljenost STOT enkrat, Kategorija 3
3.9/1	STOT RE 1	Specifična strupenost za ciljne organe (STOT) – ponavljajoča se izpostavljenost, Kategorija 1

**Razvrstitev in postopek, uporabljen za izpeljavo razvrstitve za zmesi v skladu z Uredbo (ES) 1272/2008 [uredba CLP]:**

**Razvrstitev v skladu z Uredbo (ES) št. 1272/2008 Postopek razvrščanja**

3.3/2 metoda izračuna

Ta dokument je pripravila pristojna oseba, ki je ustrezno usposobljena

Glavni bibliografski viri:

ECDIN – Informacijska mreža za okoljske podatke za kemikalije – Skupno raziskovalno središče, Komisija Evropskih skupnosti  
SAX – NEVARNE LASTNOSTI INDUSTRIJSKIH MATERIALOV – 8. izdaja – Van Nostrand Reinold



Varnostni listi dobaviteljev surovin.

CCNL - All. 1

Predstavljene informacije se nanašajo na naše znanje v zgoraj navedenem datumu. Nanašajo se zgolj na omenjeni izdelek in ne predstavljajo garancije za posebno kakovost.

Uporabnik je dolžan preveriti pravilnost in popolnost teh informacij glede na svojo specifično uporabo.

Ta list razveljavlja in nadomešča vsako predhodno izdajo

Legenda okrajšav in kratic, uporabljenih v varnostnem listu:

ACGIH: Ameriška konferenca vladnih industrijskih higienikov

ADR: Evropski sporazum o mednarodnem prevozu nevarnih snovi v cestnem prometu.

AND: Evropski sporazum o mednarodnem prevozu nevarnega blaga po celinskih plovniških poteh

ATE: Ocena akutne strupenosti

ATEmix: Ocena akutne strupenosti (Zmesi)

BCF: Biokoncentracijski faktor

BEI: Biološki indeks izpostavljenosti

BOD: Biokemijska potreba po kisiku

CAS: Chemical Abstracts Service (oddelek Ameriškega kemijskega društva).

CAV: Center za zastupitve

CE: Evropska skupnost

CLP: Razvrščanje, etiketiranje, pakiranje.

CMR: Rakotvorno, mutageno in strupeno za razmnoževanje

COD: Kemijska potreba po kisiku

COV: Hlapna organska spojina

CSA: Ocena kemijske varnosti

CSR: Poročilo o kemijski varnosti

DMEL: Izpeljane vrednosti z minimalnim učinkom

DNEL: Izpeljane vrednosti brez učinka.

DPD: Direktiva o nevarnih pripravkih

DSD: Direktiva o nevarnih snoveh

EC50: Srednja učinkovita koncentracija

ECHA: Evropska agencija za kemikalije

EINECS: Evropski seznam obstoječih snovi.

ES: Scenarij izpostavljenosti

GefStoffVO: Odlok o nevarnih snoveh, Nemčija.

GHS: Globalno poenoten sistem razvrščanja in označevanja nevarnih kemikalij.

IARC: Mednarodna agencija za raziskovanje raka

IATA: Mednarodno združenje za zračni transport.

IATA-DGR: Predpis za prevoz nevarnih snovi v zračnem prometu "Mednarodnega združenja za zračni transport" (IATA).

IC50: Srednja inhibitorna koncentracija

ICAO: Mednarodna organizacija civilnega letalstva.

ICAO-TI: Tehnična navodila "Mednarodne organizacije civilnega letalstva".

IMDG: Mednarodni kodeks za prevoz nevarnega blaga po morju

INCI: Mednarodna nomenklatura kozmetičnih sestavin.

IRCCS: Znanstveni inštitut za raziskave, hospitalizacijo in zdravstveno nego

KAFH: KAFH

KSt: Koeфициent eksplozivnosti.

LC50: Letalna koncentracija za 50 odstotkov testne populacije.

LD50: Letalna doza za 50 odstotkov testne populacije.

LDLo: Najnižja smrtna doza

N.A.: Se ne uporablja

N/A: Se ne uporablja

N/D: Ni opredeljeno/Ni razpoložljiv

NA: Ni razpoložljivo

NIOSH: Nacionalni inštitut za varnost in zdravje pri delu

NOAEL: Raven brez opaznih negativnih vplivov

OSHA: Upravljanje varnosti in zdravja pri delu

PBT: Obstojne, se kopičijo v organizmih in so strupene

PGK: Navodila za embalažo nevarnih snovi

PNEC: Predvidena koncentracija brez učinka.

PSG: Potniki

RID: Pravilnik o mednarodnem prevozu nevarnega blaga po železnici.

STEL: Meja za kratkotrajno izpostavljenost.

STOT: Specifično strupeno za ciljne organe.

TLV: Mejna vrednost izpostavljenosti.

TWATLV: Mejna vrednost izpostavljenosti v časovnem obdobju po 8 ur dnevno (ACGIH standard).

vPvB: Telo obstojno, se zelo lahko kopiči v organizmih.

WGK: Nemški razred nevarnosti za vodo.

**Odstavki spremenjeni od prejšnje revizije:**

- ODDELEK 1: Identifikacija snovi/zmesi in družbe/podjetja
- ODDELEK 2: Določitev nevarnosti
- ODDELEK 3: Sestava/podatki o sestavinah
- ODDELEK 4: Ukrepi za prvo pomoč
- ODDELEK 5: Protipožarni ukrepi
- ODDELEK 6: Ukrepi o nenamernih izpustih
- ODDELEK 7: Ravnanje in skladiščenje
- ODDELEK 8: Nadzor izpostavljenosti/osebna zaščita
- ODDELEK 9: Fizikalne in kemijske lastnosti
- ODDELEK 10: Obstojnost in reaktivnost
- ODDELEK 11: Toksikološki podatki
- ODDELEK 12: Ekološki podatki
- ODDELEK 13: Odstranjevanje
- ODDELEK 14: Podatki o prevozu
- ODDELEK 15: Zakonsko predpisani podatki

Version: 1.0/EN

Revision date: February 2013

Printing Date: May 2015

## EXPOSURE SCENARIOS

The current document includes all relevant occupational and environmental exposure scenarios (ES) for the production and use of calcium dihydroxide as required under the REACH Regulation (Regulation (EC) No 1907/2006). For the development of the ES the Regulation and the relevant REACH Guidance have been considered. For the description of the covered uses and processes, the "R.12 – Use descriptor system" guidance (Version: 2, March 2010, ECHA-2010-G-05-EN), for the description and implementation of risk management measures (RMM) the "R.13 – Risk management measures" guidance (Version: 1.1, May 2008), for the occupational exposure estimation the "R.14 – Occupational exposure estimation" guidance (Version: 2, May 2010, ECHA-2010-G-09-EN) and for the actual environmental exposure assessment the "R.16 – Environmental Exposure Assessment" (Version: 2, May 2010, ECHA-10-G-06-EN) was used.

### **Methodology used for environmental exposure assessment**

The environmental exposure scenarios only address the assessment at the local scale, including municipal sewage treatment plants (STPs) or industrial waste water treatment plants (WWTPs) when applicable, for industrial and professional uses as any effects that might occur is expected to take place on a local scale.

#### **1) Professional uses (local scale)**

The exposure and risk assessment is only relevant for the aquatic and terrestrial environment. The aquatic effect and risk assessment is determined by the pH effect. Nevertheless, the classical risk characterisation ratio (RCR), based on PEC (predicted environmental concentration) and PNEC (predicted no effect concentration) is calculated. The professional uses on a local scale refer to applications on agricultural or urban soil. The environmental exposure is assessed based on data and a modelling tool. The modelling FOCUS/ Exposit tool is used to assess terrestrial and aquatic exposure (typically conceived for biocidal applications).

Details and scaling approach indications are reported in the specific scenarios.

### **Methodology used for occupational exposure assessment**

By definition an exposure scenario (ES) has to describe under which operational conditions (OC) and risk management measure (RMMs) the substance can be handled safely. This is demonstrated if the estimated exposure level is below the respective derived no-effect level (DNEL), which is expressed in the risk characterisation ratio (RCR). For workers, the repeated dose DNEL for inhalation as well as the acute DNEL for inhalation are based on the respective recommendations of the scientific committee on occupational exposure limits (SCOEL) being 1 mg/m<sup>3</sup> and 4 mg/m<sup>3</sup>, respectively.

In cases where neither measured data nor analogous data are available, human exposure is assessed with the aid of a modelling tool. At the first tier screening level, the MEASE tool (<http://www.ebrc.de/mease.html>) is used to assess inhalation exposure according to the ECHA guidance (R.14).

Since the SCOEL recommendation refers to respirable dust while the exposure estimates in MEASE reflect the inhalable fraction, an additional safety margin is inherently included in the exposure scenarios below when MEASE has been used to derive exposure estimates.

### **Methodology used for consumer exposure assessment**

By definition an ES has to describe under which conditions the substances, preparation or articles can be handled safely. In cases where neither measured data nor analogous data are available, exposure is assessed with the aid of a modelling tool.

---

**Version: 1.0/EN**

**Revision date: February 2013**

**Printing Date: May 2015**

---

For consumers, the repeated dose DNEL for inhalation as well as the acute DNEL for inhalation are based on the respective recommendations of the Scientific Committee on Occupational Exposure Limits (SCOEL), being 1 mg/m<sup>3</sup> and 4 mg/m<sup>3</sup>, respectively.

For inhalation exposure to powders the data, derived from van Hemmen (van Hemmen, 1992: Agricultural pesticide exposure data bases for risk assessment. Rev Environ Contam Toxicol. 126: 1-85.), has been used to calculate the inhalation exposure. The inhalation exposure for consumers is estimated at 15 µg/hr or 0.25 µg/min. For larger tasks the inhalation exposure is expected to be higher. A factor of 10 is suggested when the product amount exceeds 2.5 kg, resulting in the inhalation exposure of 150 µg/hr. To convert these values in mg/m<sup>3</sup> a default value of 1.25 m<sup>3</sup>/hr for the breathing volume under light working conditions will be assumed (van Hemmen, 1992) giving 12 µg/m<sup>3</sup> for small tasks and 120 µg/m<sup>3</sup> for larger tasks.

When the preparation or substance is applied in granular form or as tablets, reduced exposure to dust was assumed. To take this into account if data about particle size distribution and attrition of the granule are lacking, the model for powder formulations is used, assuming a reduction in dust formation by 10 % according to Becks and Falks (Manual for the authorisation of pesticides. Plant protection products. Chapter 4 Human toxicology; risk operator, worker and bystander, version 1.0., 2006).

For dermal exposure and exposure to the eye a qualitative approach has been followed, as no DNEL could be derived for this route due to the irritating properties of calcium oxide. Oral exposure was not assessed as this is not a foreseeable route of exposure regarding the uses addressed.

Since the SCOEL recommendation refers to respirable dust while the exposure estimates by the model from van Hemmen reflect the inhalable fraction, an additional safety margin is inherently included in the exposure scenarios below, i.e. the exposure estimates are very conservative.

The exposure assessment of calcium dihydroxide professional and industrial and consumer use is performed and organized based on several scenarios. An overview of the scenarios and the coverage of substance life cycle is presented in Table 1.

Version: 1.0/EN

Revision date: February 2013

Printing Date: May 2015

**Table 1:** Overview on exposure scenarios and coverage of substance life cycle

ES number	Exposure scenario title	Manufacture	Identified uses			Resulting life cycle stage Service life (for articles)	Linked to Identified Use	Sector of use category (SU)	Chemical Product Category (PC)	Process category (PROC)	Article category (AC)	Environmental release category (ERC)
			Formulation	End use	Consumer							
9.1	Manufacture and industrial uses of aqueous solutions of lime substances	X	X	X		X	1	3; 1, 2a, 2b, 4, 5, 6a, 6b, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 23, 24	1, 2, 3, 7, 8, 9a, 9b, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40	1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 12, 13, 14, 15, 16, 17, 18, 19	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 13	1, 2, 3, 4, 5, 6a, 6b, 6c, 6d, 7, 12a, 12b, 10a, 10b, 11a, 11b
9.2	Manufacture and industrial uses of low dusty solids/powders of lime substances	X	X	X		X	2	3; 1, 2a, 2b, 4, 5, 6a, 6b, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 23, 24	1, 2, 3, 7, 8, 9a, 9b, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40	1, 2, 3, 4, 5, 6, 7, 8a, 8b, 9, 10, 13, 14, 15, 16, 17, 18, 19, 21, 22, 23, 24, 25, 26, 27a, 27b	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 13	1, 2, 3, 4, 5, 6a, 6b, 6c, 6d, 7, 12a, 12b, 10a, 10b, 11a, 11b
9.3	Manufacture and industrial uses of medium dusty solids/powders of lime substances	X	X	X		X	3	3; 1, 2a, 2b, 4, 5, 6a, 6b, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 23, 24	1, 2, 3, 7, 8, 9a, 9b, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40	1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 13, 14, 15, 16, 17, 18, 19, 22, 23, 24, 25, 26, 27a, 27b	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 13	1, 2, 3, 4, 5, 6a, 6b, 6c, 6d, 7, 12a, 12b, 10a, 10b, 11a, 11b

Version: 1.0/EN

Revision date: February 2013

Printing Date: May 2015

ES number	Exposure scenario title	Manufacture	Identified uses			Resulting life cycle stage Service life (for articles)	Linked to Identified Use	Sector of use category (SU)	Chemical Product Category (PC)	Process category (PROC)	Article category (AC)	Environmental release category (ERC)
			Formulation	End use	Consumer							
9.4	Manufacture and industrial uses of high dusty solids/powders of lime substances	X	X	X		X	4	3; 1, 2a, 2b, 4, 5, 6a, 6b, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 23, 24	1, 2, 3, 7, 8, 9a, 9b, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40	1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 13, 14, 15, 16, 17, 18, 19, 22, 23, 24, 25, 26, 27a, 27b	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 13	1, 2, 3, 4, 5, 6a, 6b, 6c, 6d, 7, 12a, 12b, 10a, 11a
9.5	Manufacture and industrial uses of massive objects containing lime substances	X	X	X		X	5	3; 1, 2a, 2b, 4, 5, 6a, 6b, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 23, 24	1, 2, 3, 7, 8, 9a, 9b, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40	6, 14, 21, 22, 23, 24, 25	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 13	1, 2, 3, 4, 5, 6a, 6b, 6c, 6d, 7, 12a, 12b, 10a, 10b, 11a, 11b
9.6	Professional uses of aqueous solutions of lime substances		X	X		X	6	22; 1, 5, 6a, 6b, 7, 10, 11, 12, 13, 16, 17, 18, 19, 20, 23, 24	1, 2, 3, 7, 8, 9a, 9b, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40	2, 3, 4, 5, 8a, 8b, 9, 10, 12, 13, 15, 16, 17, 18, 19	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 13	2, 8a, 8b, 8c, 8d, 8e, 8f

Version: 1.0/EN

Revision date: February 2013

Printing Date: May 2015

ES number	Exposure scenario title	Manufacture	Identified uses			Resulting life cycle stage Service life (for articles)	Linked to Identified Use	Sector of use category (SU)	Chemical Product Category (PC)	Process category (PROC)	Article category (AC)	Environmental release category (ERC)
			Formulation	End use	Consumer							
9.7	Professional uses of low dusty solids/powders of lime substances		X	X		X	7	22; 1, 5, 6a, 6b, 7, 10, 11, 12, 13, 16, 17, 18, 19, 20, 23, 24	1, 2, 3, 7, 8, 9a, 9b, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40	2, 3, 4, 5, 8a, 8b, 9, 10, 13, 15, 16, 17, 18, 19, 21, 25, 26	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 13	2, 8a, 8b, 8c, 8d, 8e, 8f
9.8	Professional uses of medium dusty solids/powders of lime substances		X	X		X	8	22; 1, 5, 6a, 6b, 7, 10, 11, 12, 13, 16, 17, 18, 19, 20, 23, 24	1, 2, 3, 7, 8, 9a, 9b, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40	2, 3, 4, 5, 8a, 8b, 9, 10, 13, 15, 16, 17, 18, 19, 25, 26	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 13	2, 8a, 8b, 8c, 8d, 8e, 8f, 9a, 9b
9.9	Professional uses of high dusty solids/powders of lime substances		X	X		X	9	22; 1, 5, 6a, 6b, 7, 10, 11, 12, 13, 16, 17, 18, 19, 20, 23, 24	1, 2, 3, 7, 8, 9a, 9b, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40	2, 3, 4, 5, 8a, 8b, 9, 10, 13, 15, 16, 17, 18, 19, 25, 26	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 13	2, 8a, 8b, 8c, 8d, 8e, 8f

Version: 1.0/EN

Revision date: February 2013

Printing Date: May 2015

ES number	Exposure scenario title	Manufacture	Identified uses			Resulting life cycle stage Service life (for articles)	Linked to Identified Use	Sector of use category (SU)	Chemical Product Category (PC)	Process category (PROC)	Article category (AC)	Environmental release category (ERC)
			Formulation	End use	Consumer							
9.10	Professional use of lime substances in soil treatment		X	X			10	22	9b	5, 8b, 11, 26		2, 8a, 8b, 8c, 8d, 8e, 8f
9.11	Professional uses of articles/containers containing lime substances			X		X	11	22; 1, 5, 6a, 6b, 7, 10, 11, 12, 13, 16, 17, 18, 19, 20, 23, 24		0, 21, 24, 25	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 13	10a, 11a, 11b, 12a, 12b
9.12	Consumer use of building and construction material (DIY)				X		12	21	9b, 9a			8
9.13	Consumer use of $\text{CO}_2$ absorbent in breathing apparatuses				X		13	21	2			8



Version: 1.0/EN

Revision date: February 2013

Printing Date: May 2015

ES number	Exposure scenario title	Manufacture	Identified uses			Resulting life cycle stage Service life (for articles)	Linked to Identified Use	Sector of use category (SU)	Chemical Category (PC) Product	Process category (PROC)	Article category (AC)	Environmental release category (ERC)
			Formulation	End use	Consumer							
9.14	Consumer use of garden lime/fertilizer				X		14 21		20, 12			8e
9.15	Consumer use of lime substances as water treatment chemicals in aquaria				X		15 21		20, 37			8
9.16	Consumer use of cosmetics containing lime substances				X		16 21		39			8

Version: 1.0/EN

Revision date: February 2013

Printing Date: May 2015

## ES number 9.9: Professional uses of high dusty solids/ powders of lime substances

Exposure Scenario Format (1) addressing uses carried out by workers		
1. Title		
Free short title	Professional uses of high dusty solids/powders of lime substances	
Systematic based on descriptor	title use	SU22, SU1, SU5, SU6a, SU6b, SU7, SU10, SU11, SU12, SU13, SU16, SU17, SU18, SU19, SU20, SU23, SU24 PC1, PC2, PC3, PC7, PC8, PC9a, PC9b, PC11, PC12, PC13, PC14, PC15, PC16, PC17, PC18, PC19, PC20, PC21, PC23, PC24, PC25, PC26, PC27, PC28, PC29, PC30, PC31, PC32, PC33, PC34, PC35, PC36, PC37, PC39, PC40 AC1, AC2, AC3, AC4, AC5, AC6, AC7, AC8, AC10, AC11, AC13 (appropriate PROCs and ERCs are given in Section 2 below)
Processes, tasks and/or activities covered	Processes, tasks and/or activities covered are described in Section 2 below.	
Assessment Method	The assessment of inhalation exposure is based on the exposure estimation tool MEASE. The environmental assessment is based on FOCUS-Exposit.	
2. Operational conditions and risk management measures		
PROC/ERC	REACH definition	Involved tasks
PROC 2	Use in closed, continuous process with occasional controlled exposure	Further information is provided in the ECHA Guidance on information requirements and chemical safety assessment, Chapter R.12: Use descriptor system (ECHA-2010-G-05-EN).
PROC 3	Use in closed batch process (synthesis or formulation)	
PROC 4	Use in batch and other process (synthesis) where opportunity for exposure arises	
PROC 5	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)	
PROC 8a	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities	
PROC 8b	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities	
PROC 9	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	
PROC 10	Roller application or brushing	
PROC 11	Non industrial spraying	
PROC 13	Treatment of articles by dipping and pouring	
PROC 15	Use as laboratory reagent	
PROC 16	Using material as fuel sources, limited exposure to unburned product to be expected	
PROC 17	Lubrication at high energy conditions and in partly open process	
PROC 18	Greasing at high energy conditions	
PROC 19	Hand-mixing with intimate contact and only PPE available	
PROC 25	Other hot work operations with metals	
PROC 26	Handling of solid inorganic substances at ambient temperature	
ERC2, ERC8b, ERC8d, ERC8f	ERC8a, ERC8c, ERC8e	Wide dispersive indoor and outdoor use of reactive substances or processing aids in open systems

Version: 1.0/EN

Revision date: February 2013

Printing Date: May 2015

## 2.1 Control of workers exposure

### Product characteristic

According to the MEASE approach, the substance-intrinsic emission potential is one of the main exposure determinants. This is reflected by an assignment of a so-called fugacity class in the MEASE tool. For operations conducted with solid substances at ambient temperature the fugacity is based on the dustiness of that substance. Whereas in hot metal operations, fugacity is temperature based, taking into account the process temperature and the melting point of the substance. As a third group, high abrasive tasks are based on the level of abrasion instead of the substance intrinsic emission potential.

PROC	Use in preparation	Content in preparation	Physical form	Emission potential
All applicable PROCs	not restricted		solid/powder	high

### Amounts used

The actual tonnage handled per shift is not considered to influence the exposure as such for this scenario. Instead, the combination of the scale of operation (industrial vs. professional) and level of containment/automation (as reflected in the PROC) is the main determinant of the process intrinsic emission potential.

### Frequency and duration of use/exposure

PROC	Duration of exposure
PROC 4, 5, 8a, 8b, 9, 10, 16, 17, 18, 19, 26	≤ 240 minutes
PROC 11	≤ 60 minutes
All other applicable PROCs	480 minutes (not restricted)

### Human factors not influenced by risk management

The shift breathing volume during all process steps reflected in the PROCs is assumed to be 10 m<sup>3</sup>/shift (8 hours).

### Other given operational conditions affecting workers exposure

Operational conditions like process temperature and process pressure are not considered relevant for occupational exposure assessment of the conducted processes. In process steps with considerably high temperatures (i.e. PROC 22, 23, 25), the exposure assessment in MEASE is however based on the ratio of process temperature and melting point. As the associated temperatures are expected to vary within the industry the highest ratio was taken as a worst case assumption for the exposure estimation. Thus all process temperatures are automatically covered in this exposure scenario for PROC 22, 23 and PROC 25.

### Technical conditions and measures at process level (source) to prevent release

Risk management measures at the process level (e.g. containment or segregation of the emission source) are generally not required in the processes.

### Technical conditions and measures to control dispersion from source towards the worker

PROC	Level of separation	Localised controls (LC)	Efficiency of LC (according to MEASE)	Further information
PROC 4, 5, 8a, 8b, 9, 11, 16, 26	Any potentially required separation of workers from the emission source is indicated above under "Frequency and duration of exposure". A reduction of exposure duration can be achieved, for example, by the installation of ventilated (positive pressure) control rooms or by removing the worker from workplaces involved with relevant exposure.	generic local exhaust ventilation	72 %	-
PROC 17, 18		integrated local exhaust ventilation	87 %	-
PROC 19		not applicable	na	only in well ventilated rooms or outdoors (efficiency 50 %)
All other applicable PROCs		not required	na	-

### Organisational measures to prevent /limit releases, dispersion and exposure

Avoid inhalation or ingestion. General occupational hygiene measures are required to ensure a safe handling of the substance. These measures involve good personal and housekeeping practices (i.e. regular cleaning with suitable cleaning devices), no eating and smoking at the workplace, the wearing of standard working clothes and shoes unless otherwise stated below. Shower and change clothes at end of work shift. Do not wear contaminated clothing at home. Do not blow dust off with compressed air.

Version: 1.0/EN

Revision date: February 2013

Printing Date: May 2015

Conditions and measures related to personal protection, hygiene and health evaluation																																
PROC	Specification of respiratory protective equipment (RPE)	RPE efficiency (assigned protection factor, APF)	Specification of gloves	Further personal protective equipment (PPE)																												
PROC 9, 26	FFP1 mask	APF=4	Since calcium dihydroxide is classified as irritating to skin, the use of protective gloves is mandatory for all process steps.	Eye protection equipment (e.g. goggles or visors) must be worn, unless potential contact with the eye can be excluded by the nature and type of application (i.e. closed process). Additionally, face protection, protective clothing and safety shoes are required to be worn as appropriate.																												
PROC 11, 17, 18, 19	FFP3 mask	APF=20																														
PROC 25	FFP2 mask	APF=10																														
All other applicable PROCs	FFP2 mask	APF=10																														
<p>Any RPE as defined above shall only be worn if the following principles are implemented in parallel: The duration of work (compare with "duration of exposure" above) should reflect the additional physiological stress for the worker due to the breathing resistance and mass of the RPE itself, due to the increased thermal stress by enclosing the head. In addition, it shall be considered that the worker's capability of using tools and of communicating are reduced during the wearing of RPE. For reasons as given above, the worker should therefore be (i) healthy (especially in view of medical problems that may affect the use of RPE), (ii) have suitable facial characteristics reducing leakages between face and mask (in view of scars and facial hair). The recommended devices above which rely on a tight face seal will not provide the required protection unless they fit the contours of the face properly and securely.</p> <p>The employer and self-employed persons have legal responsibilities for the maintenance and issue of respiratory protective devices and the management of their correct use in the workplace. Therefore, they should define and document a suitable policy for a respiratory protective device programme including training of the workers.</p> <p>An overview of the APFs of different RPE (according to BS EN 529:2005) can be found in the glossary of MEASE.</p>																																
– only relevant for agricultural soil protection																																
Product characteristics																																
<p>Drift: 1% (very worst-case estimate based on data from dust measurements in air as a function of the distance from application)</p> <div><p>Quantity of dust per m3 (in mg)</p><p>Wind speed:</p><ul style="list-style-type: none"><li>- 3.5 m/s</li><li>- 6 m/s</li><li>- 3.5 m/s</li></ul><p>Distance from the spreader (in m)</p><table border="1"><caption>Dust concentration data (mg/m³) vs Distance (m)</caption><thead><tr><th>Distance (m)</th><th>3.5 m/s (Blue)</th><th>6 m/s (Red)</th><th>3.5 m/s (Brown)</th></tr></thead><tbody><tr><td>1</td><td>105</td><td>65</td><td>5</td></tr><tr><td>3</td><td>90</td><td>30</td><td>5</td></tr><tr><td>7</td><td>25</td><td>15</td><td>5</td></tr><tr><td>11</td><td>60</td><td>10</td><td>5</td></tr><tr><td>15</td><td>35</td><td>10</td><td>5</td></tr><tr><td>20</td><td>30</td><td>10</td><td>5</td></tr></tbody></table></div> <p>(Figure taken from: Laudet, A. et al., 1999)</p>					Distance (m)	3.5 m/s (Blue)	6 m/s (Red)	3.5 m/s (Brown)	1	105	65	5	3	90	30	5	7	25	15	5	11	60	10	5	15	35	10	5	20	30	10	5
Distance (m)	3.5 m/s (Blue)	6 m/s (Red)	3.5 m/s (Brown)																													
1	105	65	5																													
3	90	30	5																													
7	25	15	5																													
11	60	10	5																													
15	35	10	5																													
20	30	10	5																													
Amounts used																																
Ca(OH)2	2,244 kg/ha																															
Frequency and duration of use																																
1 day/year (one application per year). Multiple applications during the year are allowed, provided the total yearly amount of 2,244 kg/ha is not exceeded (Ca(OH)2)																																

Version: 1.0/EN

Revision date: February 2013

Printing Date: May 2015

Environment factors not influenced by risk management																													
Volume of surface water: 300 L/m2 Field surface area: 1 ha																													
Other given operational conditions affecting environmental exposure																													
Outdoor use of products Soil mixing depth: 20 cm																													
Technical conditions and measures at process level (source) to prevent release																													
There are no direct releases to adjacent surface waters.																													
Technical conditions and measures to reduce or limit discharges, air emissions and releases to soil																													
Drift should be minimised.																													
Organizational measures to prevent/limit release from site																													
In line with the requirements for good agricultural practice, agricultural soil should be analysed prior to application of lime and the application rate should be adjusted according to the results of the analysis.																													
2.2 Control of environmental exposure – only relevant for soil treatment in civil engineering																													
Product characteristics																													
Drift: 1% (very worst-case estimate based on data from dust measurements in air as a function of the distance from application)																													
<div><p>Quantity of dust per m3 (in mg)</p><p>Wind speed:</p><ul style="list-style-type: none"><li>- 3.5 m/s</li><li>- 6 m/s</li><li>- 3.5 m/s</li></ul><p>Distance from the spreader (in m)</p><table border="1"><caption>Estimated data from the graph</caption><thead><tr><th>Distance (m)</th><th>3.5 m/s (mg/m³)</th><th>6 m/s (mg/m³)</th><th>3.5 m/s (mg/m³)</th></tr></thead><tbody><tr><td>1</td><td>100</td><td>60</td><td>10</td></tr><tr><td>3</td><td>90</td><td>30</td><td>10</td></tr><tr><td>7</td><td>30</td><td>15</td><td>10</td></tr><tr><td>11</td><td>60</td><td>10</td><td>10</td></tr><tr><td>15</td><td>40</td><td>10</td><td>10</td></tr><tr><td>20</td><td>30</td><td>10</td><td>10</td></tr></tbody></table></div>		Distance (m)	3.5 m/s (mg/m³)	6 m/s (mg/m³)	3.5 m/s (mg/m³)	1	100	60	10	3	90	30	10	7	30	15	10	11	60	10	10	15	40	10	10	20	30	10	10
Distance (m)	3.5 m/s (mg/m³)	6 m/s (mg/m³)	3.5 m/s (mg/m³)																										
1	100	60	10																										
3	90	30	10																										
7	30	15	10																										
11	60	10	10																										
15	40	10	10																										
20	30	10	10																										
(Figure taken from: Laudet, A. et al., 1999)																													
Amounts used																													
Ca(OH)2	238,208 kg/ha																												
Frequency and duration of use																													
1 day/year and only once in a lifetime. Multiple applications during the year are allowed, provided the total yearly amount of 238,208 kg/ha is not exceeded (CaOH2)																													
Environment factors not influenced by risk management																													
Field surface area: 1 ha																													
Other given operational conditions affecting environmental exposure																													
Outdoor use of products Soil mixing depth: 20 cm																													

Version: 1.0/EN

Revision date: February 2013

Printing Date: May 2015

Technical conditions and measures at process level (source) to prevent release				
Lime is only applied onto the soil in the technosphere zone before road construction. There are no direct releases to adjacent surface waters.				
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil				
Drift should be minimised.				
3. Exposure estimation and reference to its source				
Occupational exposure				
The exposure estimation tool MEASE was used for the assessment of inhalation exposure. The risk characterisation ratio (RCR) is the quotient of the refined exposure estimate and the respective DNEL (derived no-effect level) and has to be below 1 to demonstrate a safe use. For inhalation exposure, the RCR is based on the DNEL for calcium dihydroxide of 1 mg/m <sup>3</sup> (as respirable dust) and the respective inhalation exposure estimate derived using MEASE (as inhalable dust). Thus, the RCR includes an additional safety margin since the respirable fraction being a sub-fraction of the inhalable fraction according to EN 481.				
PROC	Method used for inhalation exposure assessment	Inhalation exposure estimate (RCR)	Method used for dermal exposure assessment	Dermal exposure estimate (RCR)
PROC 2, 3, 4, 5, 8a, 8b, 9, 10, 11, 13, 15, 16, 17, 18, 19, 25, 26	MEASE	<1 mg/m <sup>3</sup> (0.5 – 0.825)	Since calcium dihydroxide is classified as irritating to skin, dermal exposure has to be minimised as far as technically feasible. A DNEL for dermal effects has not been derived. Thus, dermal exposure is not assessed in this exposure scenario.	
Environmental exposure for agricultural soil protection				
The PEC calculation for soil and surface water was based on the FOCUS soil group (FOCUS, 1996) and on the “draft guidance on the calculation of predicted environmental concentration values (PEC) of plant protection products for soil, ground water, surface water and sediment (Kloskowski et al., 1999). The FOCUS/EXPOSIT modelling tool is preferred to the EUSES as it is more appropriate for agricultural-like application as in this case where parameter as the drift needs to be included in the modelling. FOCUS is a model typically developed for biocidal applications and was further elaborated on the basis of the German EXPOSIT 1.0 model, where parameters such as drifts can be improved according to collected data: once applied on the soil, calcium dihydroxide can indeed migrate then towards surface waters, via drift.				
Environmental emissions	See amounts used			
Exposure concentration in waste treatment (WWTP)	Not relevant for agricultural soil protection			
Exposure concentration in aquatic compartment	Substance	PEC (ug/L)	PNEC (ug/L)	RCR
	$\text{Ca}(\text{OH})_2$	7.48	490	0.015
Exposure concentration in sediments	As described above, no exposure of surface water nor sediment to lime is expected. Further, in natural waters the hydroxide ions react with $\text{HCO}_3^-$ to form water and $\text{CO}_3^{2-}$ . $\text{CO}_3^{2-}$ forms $\text{CaCO}_3$ by reacting with $\text{Ca}^{2+}$ . The calcium carbonate precipitates and deposits on the sediment. Calcium carbonate is of low solubility and a constituent of natural soils.			
Exposure concentrations in soil and groundwater	Substance	PEC (mg/L)	PNEC (mg/L)	RCR
	$\text{Ca}(\text{OH})_2$	660	1080	0.61
Exposure concentration in atmospheric compartment	This point is not relevant. Calcium dihydroxide is not volatile. The vapour pressures is below $10^{-5}$ Pa.			
Exposure concentration relevant for the food chain (secondary poisoning)	This point is not relevant because calcium can be considered to be omnipresent and essential in the environment. The uses covered do not significantly influence the distribution of the constituents ( $\text{Ca}^{2+}$ and $\text{OH}^-$ ) in the environment.			

Version: 1.0/EN

Revision date: February 2013

Printing Date: May 2015

#### Environmental exposure for soil treatment in civil engineering

The soil treatment in civil engineering scenario is based on a road border scenario. At the special road border technical meeting (Ispra, September 5, 2003), EU Member States and industry agreed on a definition for a "road technosphere". The road technosphere can be defined as "the engineered environment that carries the geotechnical functions of the road in connection with its structure, operation and maintenance including the installations to ensure road safety and manage run off. This technosphere, which includes the hard and soft shoulder at the edge of the carriageway, is vertically dictated by the groundwater watertable. The road authority has responsibility for this road technosphere including road safety, road support, prevention of pollution and water management". The road technosphere was therefore excluded as assessment endpoint for risk assessment for the purpose of the existing/new substances regulations. The target zone is the zone beyond the technosphere, to which the environmental risk assessment applies.

The PEC calculation for soil was based on the FOCUS soil group (FOCUS, 1996) and on the "draft guidance on the calculation of predicted environmental concentration values (PEC) of plant protection products for soil, ground water, surface water and sediment (Kloskowski et al., 1999). The FOCUS/EXPOSIT modelling tool is preferred to the EUSES as it is more appropriate for agricultural-like application as in this case where parameter as the drift needs to be included in the modelling. FOCUS is a model typically developed for biocidal applications and was further elaborated on the basis of the German EXPOSIT 1.0 model, where parameters such as drifts can be improved according to collected data.

<b>Environmental emissions</b>	See amounts used			
<b>Exposure concentration in waste treatment plant (WWTP)</b>	Not relevant for road border scenario			
<b>Exposure concentration in aquatic compartment</b>	Not relevant for road border scenario			
<b>Exposure concentration in sediments</b>	Not relevant for road border scenario			
<b>Exposure concentrations in soil and groundwater</b>	<b>Substance</b>	<b>PEC (mg/L)</b>	<b>PNEC (mg/L)</b>	<b>RCR</b>
	$\text{Ca}(\text{OH})_2$	701	1080	0.65
<b>Exposure concentration in atmospheric compartment</b>	This point is not relevant. Calcium dihydroxide is not volatile. The vapour pressures is below $10^{-5}$ Pa.			
<b>Exposure concentration relevant for the food chain (secondary poisoning)</b>	This point is not relevant because calcium can be considered to be omnipresent and essential in the environment. The uses covered do not significantly influence the distribution of the constituents ( $\text{Ca}^{2+}$ and $\text{OH}^-$ ) in the environment.			

#### Environmental exposure for other uses

For all other uses, no quantitative environmental exposure assessment is carried because

- The operational conditions and risk management measures are less stringent than those outlined for agricultural soil protection or soil treatment in civil engineering
- Lime is an ingredient and chemically bound into a matrix. Releases are negligible and insufficient to cause a pH-shift in soil, wastewater or surface water
- Lime is specifically used to release  $\text{CO}_2$ -free breathable air, upon reaction with  $\text{CO}_2$ . Such applications only relates to the air compartment, where the lime properties are exploited
- Neutralisation/pH-shift is the intended use and there are no additional impacts beyond those desired.



Version: 1.0/EN

Revision date: February 2013

Printing Date: May 2015

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

The DU works inside the boundaries set by the ES if either the proposed risk management measures as described above are met or the downstream user can demonstrate on his own that his operational conditions and implemented risk management measures are adequate. This has to be done by showing that they limit the inhalation and dermal exposure to a level below the respective DNEL (given that the processes and activities in question are covered by the PROCs listed above) as given below. If measured data are not available, the DU may make use of an appropriate scaling tool such as MEASE ([www.ebrc.de/mease.html](http://www.ebrc.de/mease.html)) to estimate the associated exposure. The dustiness of the substance used can be determined according to the MEASE glossary. For example, substances with a dustiness less than 2.5 % according to the Rotating Drum Method (RDM) are defined as "low dusty", substances with a dustiness less than 10 % (RDM) are defined as "medium dusty" and substances with a dustiness  $\geq 10$  % are defined as "high dusty".

DNEL<sub>inhalation</sub>: 1 mg/m<sup>3</sup> (as respirable dust)

Important note: The DU has to be aware of the fact that apart from the long-term DNEL given above, a DNEL for acute effects exists at a level of 4 mg/m<sup>3</sup>. By demonstrating a safe use when comparing exposure estimates with the long-term DNEL, the acute DNEL is therefore also covered (according to R.14 guidance, acute exposure levels can be derived by multiplying long-term exposure estimates by a factor of 2). When using MEASE for the derivation of exposure estimates, it is noted that the exposure duration should only be reduced to half-shift as a risk management measure (leading to an exposure reduction of 40 %).



Version: 1.0/EN

Revision date: February 2013

Printing Date: May 2015

## ES number 9.12: Consumer use of building and construction material (DIY – do it yourself)

Exposure Scenario Format (2) addressing uses carried out by consumers				
1. Title				
Free short title	Consumer use of building and construction material			
Systematic title based on use descriptor	SU21, PC9a, PC9b, ERC8c, ERC8d, ERC8e, ERC8f			
Processes, tasks activities covered	Handling (mixing and filling) of powder formulations Application of liquid, pasty lime preparations.			
Assessment Method*	Human health: A qualitative assessment has been performed for oral and dermal exposure as well as exposure to the eye. Inhalation exposure to dust has been assessed by the Dutch model (van Hemmen, 1992). Environment: A qualitative justification assessment is provided.			
2. Operational conditions and risk management measures				
RMM	No product integrated risk management measures are in place.			
PC/ERC	Description of activity referring to article categories (AC) and environmental release categories (ERC)			
PC 9a, 9b	Mixing and loading of powder containing lime substances. Application of lime plaster, putty or slurry to the walls or ceiling. Post-application exposure.			
ERC 8c, 8d, 8e, 8f	Wide dispersive indoor use resulting in inclusion into or onto a matrix Wide dispersive outdoor use of processing aids in open systems Wide dispersive outdoor use of reactive substances in open systems Wide dispersive outdoor use resulting in inclusion into or onto a matrix			
2.1 Control of consumers exposure				
Product characteristic				
Description of the preparation	Concentration of the substance in the preparation	Physical state of the preparation	Dustiness (if relevant)	Packaging design
Lime substance	100 %	Solid, powder	High, medium and low, depending on the kind of lime substance (indicative value from DIY <sup>1</sup> fact sheet see section 9.0.3)	Bulk in bags of up to 35 kg.
Plaster, Mortar	20-40%	Solid, powder		
Plaster, Mortar	20-40%	Pasty	-	-
Putty, filler	30-55%	Pasty, highly viscous, thick liquid	-	In tubes or buckets
Pre-mixed lime wash paint	~30%	Solid, powder	High - low (indicative value from DIY <sup>1</sup> fact sheet see section 9.0.3)	Bulk in bags of up to 35 kg.
Lime wash paint/milk of lime preparation	~ 30 %	Milk of lime preparation	-	-
Amounts used				
Description of the preparation	Amount used per event			
Filler, putty	250 g – 1 kg powder (2:1 powder water) Difficult to determine, because the amount is heavily dependent on the depth and size of the holes to be filled.			
Plaster/lime wash paint	~ 25 kg depending on the size of the room, wall to be treated.			
Floor/wall equalizer	~ 25 kg depending on the size of the room, wall to be equalized.			
Frequency and duration of use/exposure				
Description of task	Duration of exposure per event		frequency of events	
Mixing and loading of lime containing powder.	1.33 min (DIY <sup>1</sup> -fact sheet, RIVM, Chapter 2.4.2 Mixing and loading of powders)		2/year (DIY <sup>1</sup> fact sheet)	
Application of lime plaster, putty or slurry to the walls or ceiling	Several minutes - hours		2/year (DIY <sup>1</sup> fact sheet)	

Version: 1.0/EN

Revision date: February 2013

Printing Date: May 2015

Human factors not influenced by risk management				
Description of the task	Population exposed	Breathing rate	Exposed body part	Corresponding skin area [cm²]
Handling of powder	Adult	1.25 m³/hr	Half of both hands	430 (DIY¹ fact sheet)
Application of liquid, pasty lime preparations.	Adult	NR	Hands and forearms	1900 (DIY¹ fact sheet)
Other given operational conditions affecting consumers exposure				
Description of the task	Indoor/outdoor	Room volume	Air exchange rate	
Handling of powder	indoor	1 m³ (personal space, small area around the user)	0.6 hr⁻¹ (unspecified room)	
Application of liquid, pasty lime preparations.	indoor	NR	NR	
Conditions and measures related to information and behavioural advice to consumers				
In order to avoid health damage DIYers should comply with the same strict protective measures which apply to professional workplaces: <ul style="list-style-type: none"><li>• Change wet clothing, shoes and gloves immediately.</li><li>• Protect uncovered areas of skin (arms, legs, face): there are various effective skin protection products which should be used in accordance with a skin protection plan (skin protection, cleansing and care). Cleanse the skin thoroughly after the work and apply a care product.</li></ul>				
Conditions and measures related to personal protection and hygiene				
In order to avoid health damage DIYers should comply with the same strict protective measures which apply to professional workplaces: <ul style="list-style-type: none"><li>• When preparing or mixing building materials, during demolition or caulking and, above all, during overhead work, wear protective goggles as well as face masks during dusty work.</li><li>• Choose work gloves carefully. Leather gloves become wet and can facilitate burns. When working in a wet environment, cotton gloves with plastic covering (nitrile) are better. Wear gauntlet gloves during overhead work because they can considerably reduce the amount of humidity which permeates the working clothes.</li></ul>				
2.2 Control of environmental exposure				
Product characteristics				
Not relevant for exposure assessment				
Amounts used*				
Not relevant for exposure assessment				
Frequency and duration of use				
Not relevant for exposure assessment				
Environment factors not influenced by risk management				
Default river flow and dilution				
Other given operational conditions affecting environmental exposure				
Indoor Direct discharge to the wastewater is avoided.				
Conditions and measures related to municipal sewage treatment plant				
Default size of municipal sewage system/treatment plant and sludge treatment technique				
Conditions and measures related to external treatment of waste for disposal				
Not relevant for exposure assessment				
Conditions and measures related to external recovery of waste				
Not relevant for exposure assessment				
3. Exposure estimation and reference to its source				
The risk characterisation ratio (RCR) is the quotient of the refined exposure estimate and the respective DNEL (derived no-effect level) and is given in parentheses below. For inhalation exposure, the RCR is based on the acute DNEL for lime substances of 4 mg/m³ (as respirable dust) and the respective inhalation exposure estimate (as inhalable dust). Thus, the RCR includes an additional safety margin since the respirable fraction is a sub-fraction of the inhalable fraction according to EN 481. Since limes are classified as irritating to skin and eyes a qualitative assessment has been performed for dermal exposure and exposure to the eye.				

Version: 1.0/EN

Revision date: February 2013

Printing Date: May 2015

Human exposure		
Handling of powder		
Route of exposure	Exposure estimate	Method used, comments
Oral	-	Qualitative assessment Oral exposure does not occur as part of the intended product use.
Dermal	small task: $0.1 \mu\text{g}/\text{cm}^2$ (-) large task: $1 \mu\text{g}/\text{cm}^2$ (-)	Qualitative assessment If risk reduction measures are taken into account no human exposure is expected. However, dermal contact to dust from loading of lime substances or direct contact to the lime cannot be excluded if no protective gloves are worn during application. This may occasionally result in mild irritation easily avoided by prompt rinsing with water. Quantitative assessment The constant rate model of ConsExpo has been used. The contact rate to dust formed while pouring powder has been taken from the DIY <sup>1</sup> -fact sheet (RIVM report 320104007).
Eye	Dust	Qualitative assessment If risk reduction measures are taken into account no human exposure is expected. Dust from loading of the lime substances cannot be excluded if no protective goggles are used. Prompt rinsing with water and seeking medical advice after accidental exposure is advisable.
Inhalation	Small task: $12 \mu\text{g}/\text{m}^3$ (0.003) Large task: $120 \mu\text{g}/\text{m}^3$ (0.03)	Quantitative assessment Dust formation while pouring the powder is addressed by using the dutch model (van Hemmen, 1992, as described in section 9.0.3.1 above).
Application of liquid, pasty lime preparations.		
Route of exposure	Exposure estimate	Method used, comments
Oral	-	Qualitative assessment Oral exposure does not occur as part of the intended product use.
Dermal	Splashes	Qualitative assessment If risk reduction measures are taken into account no human exposure is expected. However, splashes on the skin cannot be excluded if no protective gloves are worn during the application. Splashes may occasionally result in mild irritation easily avoided by immediate rinsing of the hands with water.
Eye	Splashes	Qualitative assessment If appropriate goggles are worn no exposure to the eyes needs to be expected. However, splashes into the eyes cannot be excluded if no protective goggles are worn during the application of liquid or pasty lime preparations, especially during overhead work. Prompt rinsing with water and seeking medical advice after accidental exposure is advisable.
Inhalation	-	Qualitative assessment Not expected, as the vapour pressure of limes in water is low and generation of mists or aerosols does not take place.
Post-application exposure		
No relevant exposure will be assumed as the aqueous lime preparation will quickly convert to calcium carbonate with carbon dioxide from the atmosphere.		
Environmental exposure		
Referring to the OC/RMMs related to the environment to avoid discharging lime solutions directly into municipal wastewater, the pH of the influent of a municipal wastewater treatment plant is circum-neutral and therefore, there is no exposure to the biological activity. The influent of a municipal wastewater treatment plant is often neutralized anyway and lime may even be used beneficially for pH control of acid wastewater streams that are treated in biological WWTPs. Since the pH of the influent of the municipal treatment plant is circum neutral, the pH impact is negligible on the receiving environmental compartments, such as surface water, sediment and terrestrial compartment.		

End of the safety data sheet