PF-500

Version number: 2.0
Replaces version of: 2013-11-28

Revision: 2017-09-12

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name: **PF-500** (flux for Submerged Arc Welding)

Registration number (REACH): not relevant (mixture)

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses: Welding and soldering product
The product is intended for professional use

Specific process or activity: welding (welding process)

Uses advised against: Do not use for squirting or spraying. Do not use for products which come into direct contact with the skin.

1.3 Details of the supplier of the safety data sheet

Kobelco Welding of Europe B.V.
Eisterweg 8
6422 PN Heerlen
Netherlands

Telephone: +31(0)45-5471111
Telefax: +31(0)45-5471100
e-mail: info@kobelcowelding.nl

e-mail (competent person): info@kobelcowelding.nl

1.4 Emergency telephone number

Emergency information service: +31(0)45-5471111
This number is only available during the following office hours: Mon-Fri 09:00 - 17:00

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP)

Section	Hazard class	Category	Hazard class and category	Hazard state-ment
3.2	skin corrosion/irritation	1A	Skin Corr. 1A	H314
3.3	serious eye damage/eye irritation	1	Eye Dam. 1	H318

For full text of abbreviations: see SECTION 16.

The most important adverse physicochemical, human health and environmental effects

Skin corrosion produces an irreversible damage to the skin; namely, visible necrosis through the epidermis and into the dermis.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)

- signal word: danger
- pictograms

GHS05

- hazard statements

H314	Causes severe skin burns and eye damage.

- precautionary statements

P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P303+P361+P353	IF ON SKIN (or hair): take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P321	Specific treatment (see on this label).
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

- hazardous ingredients for labelling calcium oxide; disodium oxide; Dipotassium oxide

2.3 Other hazards

Avoid breathing dust. Avoid contact with eyes. Avoid skin contact.
When this product is used in a welding process, the most significant hazards are electric shock, fumes, gases, radiation, spatter, slag and heat.
Shock: electric shock can kill.
Fumes: Overexposure to welding fumes may result in symptoms like dizziness, nausea, dryness or irritation of the nose, throat or eyes. Chronic overexposure to welding fumes may affect pulmonary function.
Gases: gases may cause gas poisoning.
Radiation: arc rays can severely damage eyes or skin.
Spatter, slag and heat: spatter and slag can damage eyes. Spatter, slag, melting material, arc rays and hot welds can cause burn injuries and start fires.

Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

SECTION 3: Composition/information on ingredients

3.1 Substances

Not relevant (mixture)

3.2 Mixtures

The product does not contain any (other) ingredients which are classified according to present knowledge of the supplier and contribute to the classification of the substance and hence require reporting in this section.

Name of substance	Identifier	Wt%	Classification acc. to GHS	Pictograms	Notes	Specific Conc. Limits	M-Factors
calcium oxide	CAS No 1305-78-8 EC No 215-138-9	≤ 5	Skin Irrit. 2 / H315 Eye Dam. 1 / H318 STOT SE 3 / H335				
Dipotassium oxide	CAS No 12136-45-7 EC No 235-227-6	≤ 3	Skin Corr. 1A / H314 Eye Dam. 1 / H318				
Dilithium oxide	CAS No 12057-24-8	≤ 1	Skin Corr. 1B / H314 Eye Dam. 1 / H318 Aquatic Chronic 3 / H412				

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Name of sub-stance	Identifier	Wt%	Classification acc. to GHS	Picto-grams	Notes	Specific Conc. Limits	M-Factors
Calcium	CAS No 7440-70-2 EC No 231-179-5	≤ 1	Water-react. 2 / H261				

Remarks

For full text of H-phrases: see SECTION 16. All the percentages given are percentages by weight unless stated otherwise.

SECTION 4: First aid measures

4.1 Description of first aid measures

General notes

Do not leave affected person unattended. Remove victim out of the danger area. Keep affected person warm, still and covered. Take off immediately all contaminated clothing. In all cases of doubt, or when symptoms persist, seek medical advice. In case of unconsciousness place person in the recovery position. Never give anything by mouth. Disconnect and turn off the power. If the victim is semi- or unconscious, open the airway. If the victim cannot breath, give artificial respiration. If there is no pulse, massage the chest and apply artificial respiration.

Electrical shock

Disconnect and turn off the power. If the victim is semi- or unconscious, open the airway. If the victim cannot breath, give artificial respiration. If there is no pulse, massage the chest and apply artificial respiration.

Following inhalation

Provide fresh air. If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. In case of respiratory tract irritation, consult a physician. If experiencing respiratory symptoms: Call a doctor.

Following skin contact

Rinse skin with water/shower.

Following eye contact

Remove contact lenses, if present and easy to do. Continue rinsing. Irrigate copiously with clean, fresh water for at least 15 minutes, holding the eyelids apart.

Following ingestion

Rinse mouth with water (only if the person is conscious). Do NOT induce vomiting. Call a POISON CENTER or doctor if you feel unwell.

4.2 Most important symptoms and effects, both acute and delayed

No further relevant information available.

4.3 Indication of any immediate medical attention and special treatment needed

For specialist advice physicians should contact the poison centre.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Alcohol resistant foam, Dry extinguishing powder, Dry sand, Carbon dioxide (CO2), Water spray

5.2 Special hazards arising from the substance or mixture

No further relevant information available.

Hazardous combustion products

During fire hazardous fumes/smoke could be produced.

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Co-ordinate firefighting measures to the fire surroundings. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance.

Special protective equipment for firefighters

Self-contained breathing apparatus (EN 133). Standard protective clothing for firefighters.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Remove persons to safety.

For emergency responders

Wear breathing apparatus if exposed to vapours/dust/spray/gases. Use personal protective equipment as required.

6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

6.3 Methods and material for containment and cleaning up

Advices on how to contain a spill

Covering of drains. Take up mechanically.

Advices on how to clean up a spill

Take up mechanically.

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Keep away from fire.

Recommendations

- measures to prevent fire as well as aerosol and dust generation

No special measures are necessary.

Advice on general occupational hygiene

Wash hands after use. Do not eat, drink and smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are normally used for food or drink. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities

Managing of associated risks

- explosive atmospheres

Removal of dust deposits.

- flammability hazards

Keep away from fire. Keep away from combustible material.

- incompatible substances or mixtures

Acids, Alkalis, Oxidisers

Control of effects

Protect against external exposure, such as

High temperatures, Humidity

Consideration of other advice

Store in a well-ventilated place. Keep container tightly closed.

- general rule

Store welding consumables inside a room without humidity. Do not store welding consumables directly on the ground or beside a wall. Keep welding consumables away from chemical substances like acids which could cause chemical reactions.

- ventilation requirements

Use local and general ventilation.

- packaging compatibilities

Only packagings which are approved (e.g. acc. to ADR) may be used.

7.3 Specific end use(s)

Welding (welding process).

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

National limit values

Occupational exposure limit values (Workplace Exposure Limits)

Country	Name of agent	CAS No	Notation	Identifier	TWA [ppm]	TWA [mg/m³]	STEL [ppm]	STEL [mg/m³]	Source
EU	calcium oxide	1305-78-8	r	IOELV		1		4	2017/164/EU
EU	manganese	7439-96-5	i	IOELV		0.2			2017/164/EU
IE	dusts non-specific		i	OELV		10			S.I. No. 619 of 2001
IE	dusts non-specific		r	OELV		4			S.I. No. 619 of 2001
IE	calcium oxide	1305-78-8		OELV		2			S.I. No. 619 of 2001
IE	iron(III) oxide (rouge)	1309-37-1	Fe, fume	OELV		5		10	S.I. No. 619 of 2001
IE	rouge	1309-37-1	i	OELV		10			S.I. No. 619 of 2001
IE	rouge	1309-37-1	r	OELV		4			S.I. No. 619 of 2001

Occupational exposure limit values (Workplace Exposure Limits)									
Country	Name of agent	CAS No	Nota-tion	Identi-fier	TWA [ppm]	TWA [mg/m³]	STEL [ppm]	STEL [mg/m³]	Source
IE	magnesium oxide	1309-48-4	fume	OELV		5		10	S.I. No. 619 of 2001
IE	magnesium oxide	1309-48-4	i	OELV		4			S.I. No. 619 of 2001
IE	magnesium oxide	1309-48-4	r	OELV		10			S.I. No. 619 of 2001
IE	aluminium oxides	1344-28-1	i	OELV		10			S.I. No. 619 of 2001
IE	aluminium oxides	1344-28-1	r	OELV		4			S.I. No. 619 of 2001
IE	manganese	7439-96-5	i	OELV		0.2		3	S.I. No. 619 of 2001
IE	manganese	7439-96-5	r	OELV		0.02			S.I. No. 619 of 2001
IE	silicon	7440-21-3	i	OELV		10			S.I. No. 619 of 2001
IE	silicon	7440-21-3	r	OELV		4			S.I. No. 619 of 2001
IE	silica, amorphous	7631-86-9	i	OELV		6			S.I. No. 619 of 2001
IE	silica, amorphous	7631-86-9	r	OELV		2.4			S.I. No. 619 of 2001

Notation

Fe	calculated as Fe (iron)
fume	as fume
i	inhalable fraction
r	respirable fraction
STEL	short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period unless otherwise specified
TWA	time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average

Relevant DNELs/DMELs/PNECs and other threshold levels

Relevant DNELs of components of the mixture						
Name of substance	CAS No	End-point	Threshold level	Protection goal, route of exposure	Used in	Exposure time
calcium oxide	1305-78-8	DNEL	4 mg/m³	human, inhalatory	worker (industry)	acute - local effects
calcium oxide	1305-78-8	DNEL	1 mg/m³	human, inhalatory	worker (industry)	chronic - local effects
Dipotassium oxide	12136-45-7	DNEL	15.83 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects
Dipotassium oxide	12136-45-7	DNEL	15.83 mg/m³	human, inhalatory	worker (industry)	acute - systemic effects
Dipotassium oxide	12136-45-7	DNEL	15.83 mg/m³	human, inhalatory	worker (industry)	chronic - local effects
Dipotassium oxide	12136-45-7	DNEL	15.83 mg/m³	human, inhalatory	worker (industry)	acute - local effects

Relevant DNELs of components of the mixture						
Name of substance	**CAS No**	**End-point**	**Threshold level**	**Protection goal, route of exposure**	**Used in**	**Exposure time**
Dipotassium oxide	12136-45-7	DNEL	9.1 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
Dipotassium oxide	12136-45-7	DNEL	200 mg/kg bw/day	human, dermal	worker (industry)	acute - systemic effects
Calcium	7440-70-2	DNEL	1 mg/m³	human, inhalatory	worker (industry)	chronic - local effects
Calcium	7440-70-2	DNEL	4 mg/m³	human, inhalatory	worker (industry)	acute - local effects

Relevant PNECs of components of the mixture						
Name of substance	**CAS No**	**End-point**	**Threshold level**	**Organism**	**Environmental compartment**	**Exposure time**
calcium oxide	1305-78-8	PNEC	0.37 mg/l	aquatic organisms	freshwater	short-term (single instance)
calcium oxide	1305-78-8	PNEC	0.24 mg/l	aquatic organisms	marine water	short-term (single instance)
calcium oxide	1305-78-8	PNEC	2.27 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
calcium oxide	1305-78-8	PNEC	817.4 mg/kg	terrestrial organisms	soil	short-term (single instance)
calcium oxide	1305-78-8	PNEC	0.37 mg/l	aquatic organisms	water	intermittent release
Dipotassium oxide	12136-45-7	PNEC	9.176 mg/l	aquatic organisms	freshwater	short-term (single instance)
Dipotassium oxide	12136-45-7	PNEC	0.918 mg/l	aquatic organisms	marine water	short-term (single instance)
Dipotassium oxide	12136-45-7	PNEC	2.2 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
Dipotassium oxide	12136-45-7	PNEC	17.75 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
Dipotassium oxide	12136-45-7	PNEC	1.78 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
Dipotassium oxide	12136-45-7	PNEC	85 mg/kg	terrestrial organisms	soil	short-term (single instance)

8.2 Exposure controls

Appropriate engineering controls

Use enough ventilation, local exhaust at the arc, or both, to keep the fumes and gases below the TLVs in the worker's breathing zone and the general area. Use extra ventilation when welding galvanized plate or coated plate.

Individual protection measures (personal protective equipment)

Eye/face protection

Wear helmet or use face shield with filter lens. As a rule of thumb, start with a shade which is too dark to see the weld zone. Then go to the next lighter shade which gives sufficient view of the weld zone. Provide protective screens and flash goggles, if necessary, to shield others.

Skin protection

Protective clothing (EN 340).

- hand protection

Welding gloves according to EN12477:2001 and A1:2005 in case of arc welding. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. The exact break through time should be requested at the protective glove manufacturer and must be observed.

- breakthrough times of the glove material

>480 minutes (permeation: level 6).

- other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended. Wash hands thoroughly after handling. Wear head, hand and bodyprotection which help to prevent injury form radiation, sparks and electric shock. At a m inimum this includes welder's gloves and protective face shield and may include arm protectors, aprons, hats, shoulder protection as well as dark substantial clothing.
Train the welder not to touch live electrical parts and to insulate himself from work and ground.

Respiratory protection

Use respirable fume respirator or air supplied respirator when welding in confined space or where local exhaust or ventilation does not keep exposure below TLV. Keep head out of the fumes and gases.

Ear protection

Wear earplugs or earmuffs when using engine driven arc welding machine or pulsed arc welding machine that generates high-level noise.

Environmental exposure controls

Use appropriate container to avoid environmental contamination. Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	solid (electrode)
Colour	grey
Odour	odourless

Other safety parameters

pH (value)	not applicable
Melting point/freezing point	not determined
Initial boiling point and boiling range	not determined
Flash point	not applicable
Evaporation rate	not determined
Flammability (solid, gas)	non-combustible

Explosion limits of dust clouds	not determined
Vapour pressure	0 Pa at 25 °C
Density	not determined
Vapour density	this information is not available
Relative density	information on this property is not available
Solubility(ies)	not determined

Partition coefficient

- n-octanol/water (log KOW)	this information is not available

Auto-ignition temperature	information on this property is not available
Viscosity	not relevant (solid matter)
Explosive properties	none
Oxidising properties	none

9.2 Other information

Of no significance.

SECTION 10: Stability and reactivity

10.1 Reactivity

Contact with chemical substances could cause generation of gas.

10.2 Chemical stability

See below "Conditions to avoid".

10.3 Possibility of hazardous reactions

Reacts with:. Acids. Alkalis. Oxidising substances.

10.4 Conditions to avoid

Keep away from heat.

10.5 Incompatible materials

Oxidisers, Acids, Alkalis

10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known. Hazardous decomposition products includes those from the volatilization, reaction or oxidation of the material listed in section 3 and those from the base metal and coating. Manganese has a low exposure limit, in some countries, that may be easily exceeded. Reasonably expected gaseous products would include carbon oxides, nitrogen oxides and ozone. Reasonably expected fume constituents of this product would include oxides of metals

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Inhalation of welding fumes and gases can be dangerous to your health. The composition and quantity of both are dependent upon the material being worked, the process, procedures and consumables used.

Classification procedure

The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

Classification according to GHS (1272/2008/EC, CLP)

Acute toxicity

Overexposure to gases, fumes and dusts may inclide irritation of the eyes, lungs, nose and throat. Some toxic gases (associated with welding) may cause pulmonary edema, asphyxiation and death. Acute overexposure may include signs and symptoms such as watery eyes, nose and throat irritation, headache, dizziness, difficulty in breathing, frequent coughing or chest pain. Exposure to the fluoride ion may cause hypocalcaemia-calcium deficiency in the blood that can result in muscle cramps and inflammation and necrosis of mucous membranes.

- acute toxicity of components of the mixture

Acute toxicity of components of the mixture

Name of substance	CAS No	Exposure route	Endpoint	Value	Species
calcium oxide	1305-78-8	oral	LD50	>2,000 $^{mg}/_{kg}$	rat
Dipotassium oxide	12136-45-7	oral	LD50	>2,000 $^{mg}/_{kg}$	rat
Dipotassium oxide	12136-45-7	dermal	LD50	>5,000 $^{mg}/_{kg}$	rat

Skin corrosion/irritation

Causes severe skin burns and eye damage.

Serious eye damage/eye irritation

Causes serious eye damage.

Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

Carcinogenicity

Shall not be classified as carcinogenic.

Reproductive toxicity

Shall not be classified as a reproductive toxicant.

Summary of evaluation of the CMR properties

Welding fumes (not otherwise specified) are possibly carcinogenic to humans.

Specific target organ toxicity - repeated exposure

Shall not be classified as a specific target organ toxicant (repeated exposure). Overexposure to air contaminants may lead to their accumulation in the lungs, a condition which may be seen as dense areas on chest X-rays. The severity of the change is proportional to the length of the exposure. The changes may be caused by non-work factors such as smoking, etc. Long term exposure to welding and allied processes gasses, dusts and fumes may contribute to pulmonary irritation or pneumoconiosis. Overexposure to manganese compounds may affect the central nervous system, symptoms of which are languor, sleepiness, muscular weakness, emotional disturbances and spastic gait. The effect of manganese on the nervous systeem is irreversible. Inhalation of to much iron oxide fume over a long time can cause siderosis, sometimes called "iron pigmentation"of the lung, which can be seen on a cest x-ray but causes little or no disability. Chronic overexposure to iron (>50-100 mg Fe per day) can result in pathological deposition of iron in body tissues of which are firbrosis of the pancreas, diabetes mellitus and lever cirrhosis. Chronic fluoride absorption can result in osseous fluor sis, increased radiographic density of the bones and mottling of the teeth.

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

Other information

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

SECTION 12: Ecological information

12.1 Toxicity

Shall not be classified as hazardous to the aquatic environment.

Aquatic toxicity (acute) of components of the mixture

Name of substance	CAS No	Endpoint	Value	Species	Exposure time
Dipotassium oxide	12136-45-7	LC50	880 $^{mg}/_{l}$	fish	96 h
Dipotassium oxide	12136-45-7	EC50	880 $^{mg}/_{l}$	aquatic invertebrates	48 h

Aquatic toxicity (chronic) of components of the mixture

Name of substance	CAS No	Endpoint	Value	Species	Exposure time
Dipotassium oxide	12136-45-7	LC50	950 $^{mg}/_{l}$	fish	24 h
Dipotassium oxide	12136-45-7	EC50	880 $^{mg}/_{l}$	aquatic invertebrates	24 h

12.2 Persistence and degradability

No further relevant information available.

12.3 Bioaccumulative potential

No further relevant information available.

12.4 Mobility in soil

Not mobile.

12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

12.6 Other adverse effects

No further relevant information available.

Endocrine disrupting potential

None of the ingredients are listed.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Sewage disposal-relevant information

Do not empty into drains. Avoid release to the environment.

Waste treatment of containers/packagings

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used. Handle contaminated packages in the same way as the substance itself.

Remarks

Please consider the relevant national or regional provisions. Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities.

SECTION 14: Transport information

14.1	**UN number**	1759
14.2	**UN proper shipping name**	CORROSIVE SOLID, N.O.S.
	Technical name (Hazardous ingredients)	disodium oxide, Dipotassium oxide
14.3	**Transport hazard class(es)**	
	Class	8 (corrosive substances)
14.4	**Packing group**	I (substance presenting high danger)
14.5	**Environmental hazards**	non-environmentally hazardous acc. to the dangerous goods regulations

14.6 Special precautions for user

Provisions for dangerous goods (ADR) should be complied within the premises.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

No data available.

Information for each of the UN Model Regulations

Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN)

UN number	1759
Proper shipping name	CORROSIVE SOLID, N.O.S.
Class	8
Classification code	C10
Packing group	I
Danger label(s)	8

Special provisions (SP)	274
Excepted quantities (EQ)	E0
Limited quantities (LQ)	0
Transport category (TC)	1
Tunnel restriction code (TRC)	E
Hazard identification No	88

International Maritime Dangerous Goods Code (IMDG)

UN number	1759
Proper shipping name	CORROSIVE SOLID, N.O.S.
Class	8
Marine pollutant	-
Packing group	I
Danger label(s)	8

Special provisions (SP)	274
Excepted quantities (EQ)	E0
Limited quantities (LQ)	0
EmS	F-A, S-B
Stowage category	B

International Civil Aviation Organization (ICAO-IATA/DGR)

UN number	1759
Proper shipping name	Corrosive solid, n.o.s.
Class	8
Packing group	I
Danger label(s)	8

Special provisions (SP)	A3
Excepted quantities (EQ)	E0

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Relevant provisions of the European Union (EU)

Restrictions according to REACH, Annex XVII

None of the ingredients are listed.

List of substances subject to authorisation (REACH, Annex XIV)

None of the ingredients are listed.

Seveso Directive

2012/18/EU (Seveso III)			
No	**Dangerous substance/hazard categories**	**Qualifying quantity (tonnes) for the application of lower and upper-tier requirements**	**Notes**
	not assigned		

Regulation 166/2006/EC concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

None of the ingredients are listed.

Directive 2000/60/EC establishing a framework for Community action in the field of water policy (WFD)

None of the ingredients are listed.

Regulation 98/2013/EU on the marketing and use of explosives precursors

None of the ingredients are listed.

15.2 Chemical Safety Assessment

No chemical safety assessment has been carried out for this mixture.

SECTION 16: Other information

Indication of changes (revised safety data sheet)

Complete revised version.

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
2017/164/EU	Comission Directive establishing a fourth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC, and amending Commission Directives 91/322/EEC, 2000/39/EC and 2009/161/EU
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
ADR	Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
Aquatic Chronic	Hazardous to the aquatic environment - chronic hazard
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
CMR	Carcinogenic, Mutagenic or toxic for Reproduction
DGR	Dangerous Goods Regulations (see IATA/DGR)
DMEL	Derived Minimal Effect Level
DNEL	Derived No-Effect Level
EC No	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
Eye Dam.	Seriously damaging to the eye
Eye Irrit.	Irritant to the eye
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
index No	The Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008

Abbr.	Descriptions of used abbreviations
IOELV	Indicative occupational exposure limit value
MARPOL	International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant")
NLP	No-Longer Polymer
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
ppm	Parts per million
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
S.I. No. 619 of 2001	Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001
Skin Corr.	Corrosive to skin
Skin Irrit.	Irritant to skin
STEL	Short-term exposure limit
STOT SE	Specific target organ toxicity - single exposure
TWA	Time-weighted average
vPvB	Very Persistent and very Bioaccumulative
Water-react.	Material which, in contact with water, emits flammable gases

Key literature references and sources for data

Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures. Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU.

Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

Classification procedure

Physical and chemical properties: The classification is based on tested mixture.
Health hazards, Environmental hazards: The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

List of relevant phrases (code and full text as stated in chapter 2 and 3)

Code	Text
H261	In contact with water releases flammable gases.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.
H412	Harmful to aquatic life with long lasting effects.

Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.

Warning text on the label

WARNING: PROTECT yourself and others. Read and understand this information.
FUMES AND GASES can be hazardous to your health.
ARC RAYS can injure eyes and burn skin.
ELECTRIC SHOCK can KILL.

- Before use, read and understand the manufacturer's instructions, Material Safety Data Sheets (MSDSs), and your employer's safety practices.
- Keep your head out of the fumes.
- Use adequate ventilation, exhaust at the arc, or both, to keep fumes and gases from your breathing zone and the general area.
- Wear correct eye, ear, and body protection.
- Do not touch free electrical parts.