
SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

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

1.1. Product identifier

Product Name	Poly(vinylidene fluoride) binder
CAS No.	Not applicable
EC No.	Not applicable
REACH Registration No.	A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration.

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

Identified Use(s)	PC21 Laboratory chemicals
Uses Advised Against	No data available

1.3 Details of the supplier of the safety data sheet

Company:	Redoxme AB
Address:	Box 5002 Kungsgatan 41 600 05 Norrköping SWEDEN
Telephone:	+46 700 89 62 86
E-mail:	info@redox.me

1.4 Emergency telephone number

Emergency Phone No.	112
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SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Skin irritation (Category 2), H315
Eye irritation (Category 2), H319
Reproductive toxicity (Category 1B), H360D
Specific target organ toxicity -single exposure (Category 3), Respiratory system, H335

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Hazard Pictogram(s)



Signal Word(s)

Danger

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Hazard Statement(s)

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H360D	May damage the unborn child.

Precautionary Statement(s)

P201	Obtain special instructions before use.
P302 + P352	IF ON SKIN: Wash with plenty of water.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention

Restricted to professional users.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients**3.1 Substances**

Not applicable

3.2 Mixtures

INGREDIENT(S)	CAS No.	EC No.	%W/V	Hazard Statement(s)	Comments
Poly(vinylidene fluoride)	24937-79-9	607-458-6	4-6%	-	-
N-Methyl-2-pyrrolidone	872-50-4	212-828-1	94 – 96%	Skin Irrit.2; Eye Irrit.2; Repr.1B; STOT SE3; H315, H319, H360D, H335 Concentration limits: >=10%: STOT SE3, H335;	Included in the Candidate List of Substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006 (REACH)

No other components need to be disclosed according to the applicable regulations.

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures**4.1 Description of first aid measures****General advice**

Consult a physician. Show this safety data sheet to the doctor in attendance.

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Inhalation	If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
Skin Contact	Wash off with soap and plenty of water. Consult a physician.
Eye Contact	Flush eyes with plenty of water for at least 15 minutes. Consult a physician.
Ingestion	Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3. Indication of any immediate medical attention and special treatment needed

No data available.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable Extinguishing media Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable extinguishing media None.

5.2 Special hazards arising from the substance or mixture

Carbon oxides, Nitrogen oxides (NO_x), Hydrogen fluoride

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

Use water spray to cool unopened containers.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Wear personal protective equipment (section 8). Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure room is well ventilated. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Contain and clean up spill if safe to do so using saw dust or absorbent mats. Dispose of in suitable closed container according to local regulations.

6.4 Reference to other sections

For disposal see section 13.

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SECTION 7: Handling and storage

7.1 Precautions for safe handling

Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build-up of electrostatic charge. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Store in a cool, dry and well-ventilated place inside of a tightly sealed container. Reseal containers that have been opened and keep upright to prevent leakage.

Storage temperature	Ambient
Storage life	Stable under recommended storage conditions.
Incompatible materials	No data available

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

8.1.1 Occupational Exposure Limits

INGREDIENT	CAS No.	LTEL (8h TWA)	STEL	Note
n-Methyl-2-pyrrolidone	872-50-4	10 ppm 40 mg/m ³	20 ppm 80 mg/m ³	Identifies the possibility of significant uptake through the skin. Indicative Can be absorbed through skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.

Region	Source
EU	Europe. COMMISSION DIRECTIVE 2009/161/EU establishing a third list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Commission Directive 2000/39/EC
United Kingdom	UK Workplace Exposure Limits EH40/2005 (Third edition, published 2018)

Predicted No Effect Concentration (PNEC)

Compartment	Value
Water	5 mg/l
Soil	0.138 mg/kg
Marine water	0.025 mg/kg
Fresh water	0.25 mg/l
Fresh water sediment	0.805 mg/kg
Onsite sewage treatment plant	10 mg/l

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial/laboratory practices hygiene and safety practice. Wash hands before breaks and at the end of workday.

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8.2.2. Personal protection equipment



Eye Protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).



Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.



Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

8.2.3. Environmental Exposure Controls

Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	Liquid
	Colour: Colourless
Odour	No data available
Odour threshold	No data available
pH	No data available
Melting point/freezing point	Melting point/range: -24°C -lit.
Initial boiling point and boiling range	202°C -lit.
Flash Point	No data available
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	Upper explosion limit: 9.5 %(V) Lower explosion limit: 1.3 %(V)
Vapour pressure	No data available
Vapour density	No data available
Density (g/ml)	No data available
Relative density	No data available
Solubility	Solubility (Water): No data available Solubility (Other): No data available
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition Temperature (°C)	No data available

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Viscosity	No data available
Explosive properties	No data available
Oxidising properties	No data available

9.2 Other safety information

No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

Heat, flames and sparks

10.5 Incompatible materials

Strong acids, Strong oxidizing agents, Strong reducing agents

10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions: Carbon oxides, Nitrogen oxides (NOx), Hydrogen fluoride

Other decomposition products: No data available

In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity - Ingestion	LD50 Oral-Rat - 3,914 mg/kg LD50 Oral-Rat-male and female - 4,150 mg/kg (OECD Test Guideline 401)
Acute toxicity - Skin Contact	LD50 Dermal-Rabbit - 8,000 mg/kg LD50 Dermal-Rat-male and female -> 5,000 mg/kg (OECD Test Guideline 402) LD50 Intraperitoneal-Mouse - 3,050 mg/kg LD50 Intraperitoneal-Rat - 2,472 mg/kg LD50 Intravenous-Mouse - 54.5 mg/kg LD50 Intravenous-Dog - 63.3 mg/kg LD50 Intravenous-Rat - 80.5 mg/kg LD50 Subcutaneous-Rat -> 2,000 mg/kg
Acute toxicity - Inhalation	LC50 Inhalation-Rat-male and female - 4h-> 5.1 mg/l (OECD Test Guideline 403)

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Skin corrosion/irritation	Skin-Rabbit Result: Irritations (OECD Test Guideline 404) Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
Serious eye damage/irritation	Eyes-Rabbit Result: Eye irritation (OECD Test Guideline 405)
Respiratory and Skin sensitization data	Sensitisation test-Guinea pig Result: negative Remarks: (IUCLID) Patch test-Human Result: negative Remarks: (IUCLID) Local lymph node assay (LLNA)-Mouse Result: negative (OECD Test Guideline 429)
Germ cell mutagenicity	Ames test - Salmonella typhimurium Result: negative In vitro mammalian cell gene mutation test - Chinese hamster ovary cells Result: negative unscheduled DNA synthesis assay Result: negative (OECD Test Guideline 474) Mouse-male and female-Bone marrow Result: negative (OECD Test Guideline 475) Chinese hamster-male and female-Bone marrow Result: negative
Carcinogenicity	IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
Reproductive toxicity	Damage to fetus possible
STOT - single exposure	Inhalation-May cause respiratory irritation
STOT - repeated exposure	No data available
Aspiration hazard	No data available

11.2 Other information

RTECS: UY5790000

Prolonged or repeated exposure may cause: Vomiting, Diarrhoea, Abdominal pain, Rats exposed to 1-methyl-2-pyrrolidinone at a concentration of 1 mg/L as an aerosol for 10 days showed depletion of hematopoietic cells in the bone marrow and atrophy of the lymphoid tissues of the thymus, spleen, and lymph nodes.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to Aquatic invertebrates	static test EC50-Daphnia magna (Water flea) -> 1,000 mg/l-24 h (DIN 38412) EC50-Daphnia magna (Water flea) -> 1,000 mg/l-24 h static test EC50-Palaemonetes vulgaris (Grass shrimp)-1,107 mg/l-96 h (EPA-660/3-75-009)
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Toxicity to Fish	static test LC50-Oncorhynchus mykiss (rainbow trout) -> 500 mg/l-96 h Remarks: (ECHA) LC50-other fish-4,000 mg/l-96 h LC50-Leuciscus idus (Golden orfe) -> 500 mg/l-96 h
Toxicity to Algae	static test EC50-Desmodesmus subspicatus (green algae)-672.8 mg/l-72 h (DIN 38412)
Toxicity to bacteria	static test EC50-activated sludge-> 600 mg/l-0.5 h (ISO 8192) LC50-Bacteria-> 9,000 mg/l LC50-Bacteria-> 9,000 mg/l EC10-Pseudomonas putida-9,000 mg/l-17 h Remarks: (Lit.) static test EC10-activated sludge-100 mg/l-48 h

12.2 Persistence and degradability

Biodegradability	Result: 90 %-Readily biodegradable. aerobic-Exposure time 28d Result: 73 %-Readily biodegradable. (OECD Test Guideline 301C)
Biochemical Oxygen Demand (BOD)	1.100 mg/g Remarks: (Lit.)
Chemical Oxygen Demand (COD)	1.600 mg/g Remarks: (Lit.)

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state and local environmental regulations and directives on waste and hazardous waste. Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging

Dispose of as unused product.

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SECTION 14: Transport information

14.1 UN number

Not applicable

14.2 UN proper shipping name

ADR/RID: Not dangerous goods

IMDG: Not dangerous goods

IATA: Not dangerous goods

14.3 Transport hazard class(es)

Not applicable

14.4 Packing group

Not applicable

14.5 Environmental hazards

ADR/RID: No

IMDG: Not classified as marine pollutant

IATA: No

14.6 Special precautions for user

No data available

SECTION 15: Regulatory information

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

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

Authorisations and/or restrictions on use

REACH -Candidate List of Substances of Very High Concern for Authorisation (Article 59) N-methyl-2-pyrrolidone

REACH -Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII) N-methyl-2-pyrrolidone

REACH -Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII) N-methyl-2-pyrrolidone

15.2 Chemical safety assessment

No chemical safety report/assessment was carried out for this product.

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SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H360D	May damage the unborn child.

Acronyms

ADR : European Agreement Concerning the International Carriage of Dangerous Goods by Road
CAS : Chemical Abstracts Service
CLP : Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
DNEL : Derived No Effect Level
EC : European Community
EC50 : Effective Concentration 50%
IARC : International Agency for Research on Cancer
IATA : International Civil Aviation Organization/International Air Transport Association
IMDG - International Maritime Dangerous Goods Code
LC50 : Lethal Concentration 50%
LD50 : Lethal Dose 50%
LTEL : Long term exposure limit
OECD : Organisation for Economic Co-operation and Development
PBT : Persistent, Bioaccumulative, Toxic
PNEC : Predicted No Effect Concentration
REACH : Registration, Evaluation, Authorisation and Restriction of Chemicals
RTECS : Registry of Toxic Effects of Chemical Substances
STEL : Short term exposure limit
STOT : Specific Target Organ Toxicity
SVHC : Substances of Very High Concern
TWA : Time-Weighted Average
vPvB : very Persistent, very Bioaccumulative

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Redoxme AB shall not be held liable for any damage resulting from handling or from contact with the above product. Freedom under Patents, Copyright and Designs cannot be assumed.