

SAFETY DATA SHEET

Surfactrode refill paste

Section 1. Identification

Product identifier : Surfactrode refill paste

Other means of identification : Not available.

Product use : Laboratory chemicals.

Supplier's details : Manufacturer
Metrohm AG
 Ionenstrasse
 9100 Herisau
 Schweiz
 Tel.: +41 (0)71 353 85 85
 Fax: +41 (0)71 353 89 01
 E-Mail: info@metrohm.com
 Web: www.metrohm.com

Supplier
Metrohm Canada
 4160 Sladeview Crescent, #6
 Mississauga, ON L5L 0A1
 Canada

Tel.: +1 (905) 569-0664
 E-Mail: info@metrohmca.com

e-mail address of person responsible for this SDS : datasheet@metrohm.com

Emergency telephone number (with hours of operation) : + 49 (0)6132-84463 (24 h, GBK GmbH)

Section 2. Hazard identification

Classification of the substance or mixture : SKIN IRRITATION - Category 2
 EYE IRRITATION - Category 2A

GHS label elements

Hazard pictograms :



Signal word : Warning

Hazard statements : H315 - Causes skin irritation.
 H319 - Causes serious eye irritation.

Precautionary statements

Prevention : P280 - Wear protective gloves. Wear eye or face protection.
 P264 - Wash hands thoroughly after handling.

Section 2. Hazard identification

Response	: P362 + P364 - Take off contaminated clothing and wash it before reuse. P302 + P352 - IF ON SKIN: Wash with plenty of water. P332 + P313 - If skin irritation occurs: Get medical advice or attention. P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical advice or attention.
Storage	: Not applicable.
Disposal	: Not applicable.
Hazards not otherwise classified	: None known.

Section 3. Composition/information on ingredients

Substance/mixture	: Mixture
Other means of identification	: Not available.

Ingredient name	% (w/w)	CAS number
Synthetic graphite	≥60 - ≤80	7782-42-5
Paraffin waxes and Hydrocarbon waxes	≥10 - ≤30	8002-74-2
1,3-didecyl-2-methyl-1H-imidazolium chloride	≥5 - ≤10	70862-65-6
sodium dodecyl sulphate	≥1 - ≤5	151-21-3

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First-aid measures

Description of necessary first aid measures

Eye contact	: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
Inhalation	: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
Skin contact	: Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Ingestion	: Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Section 4. First-aid measures

Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : Causes skin irritation.
- Ingestion** : No known significant effects or critical hazards.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness
- Inhalation** : No specific data.
- Skin contact** : Adverse symptoms may include the following:
irritation
redness
- Ingestion** : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

- Suitable extinguishing media** : Use dry chemical, CO₂, alcohol-resistant foam or water spray (fog). Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : Do not use water jet.

Specific hazards arising from the chemical : No specific fire or explosion hazard.

- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides
sulfur oxides
halogenated compounds
metal oxide/oxides
hydrogen chloride

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Move containers from spill area. Avoid dust generation. Using a vacuum with HEPA filter will reduce dust dispersal. Place spilled material in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

Large spill : Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Section 8. Exposure controls/personal protection

Ingredient name	Exposure limits
Synthetic graphite	<p>CA British Columbia Provincial (Canada, 6/2022). TWA: 2 mg/m³ 8 hours. Form: Respirable</p> <p>CA Alberta Provincial (Canada, 6/2018). OEL: 2 mg/m³ 8 hours. Form: Respirable (all forms except graphite fibres)</p> <p>CA Quebec Provincial (Canada, 6/2022). [Graphite (all forms, except fibres)] TWAEV: 2 mg/m³ 8 hours. Form: Respirable dust.</p> <p>CA Ontario Provincial (Canada, 6/2019). TWA: 2 mg/m³ 8 hours. Form: Respirable particulate matter.</p> <p>CA Saskatchewan Provincial (Canada, 7/2013). STEL: 4 mg/m³ 15 minutes. Form: respirable fraction TWA: 2 mg/m³ 8 hours. Form: respirable fraction</p>
Paraffin waxes and Hydrocarbon waxes	<p>CA Alberta Provincial (Canada, 6/2018). OEL: 2 mg/m³ 8 hours. Form: Fume</p> <p>CA British Columbia Provincial (Canada, 6/2022). TWA: 2 mg/m³ 8 hours. Form: Fume</p> <p>CA Ontario Provincial (Canada, 6/2019). TWA: 2 mg/m³ 8 hours. Form: Fume</p> <p>CA Saskatchewan Provincial (Canada, 7/2013). STEL: 4 mg/m³ 15 minutes. Form: Fume TWA: 2 mg/m³ 8 hours. Form: Fume</p> <p>CA Quebec Provincial (Canada, 6/2022). TWAEV: 2 mg/m³ 8 hours. Form: fume</p>

Biological exposure indices

No exposure indices known.

- Appropriate engineering controls** : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection

Section 8. Exposure controls/personal protection

- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.
Recommended: In accordance with CSA Z94.4-11.

Section 9. Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

- Physical state** : Solid. [Paste.]
- Color** : Gray. Black.
- Odor** : Odorless.
- Odor threshold** : Not available.
- pH** : Not applicable.
- Melting point/freezing point** : Not available.
- Boiling point, initial boiling point, and boiling range** : Not available.
- Flash point** : Not applicable.
- Evaporation rate** : Not available.
- Flammability** : Not available.
- Lower and upper explosion limit/flammability limit** : Not applicable.
- Vapor pressure** : Not available.
- Relative vapor density** : Not applicable.
- Relative density** : Not available.
- Solubility in water** : Insoluble.
- Partition coefficient: n-octanol/water** : Not applicable.
- Auto-ignition temperature** : Not applicable.
- Decomposition temperature** : Not available.
- Viscosity** : Not applicable.
- Particle characteristics**
- Median particle size** : Not available.

Section 10. Stability and reactivity

- Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- Chemical stability** : The product is stable.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- Conditions to avoid** : Keep away from heat, sparks and flame.
- Incompatible materials** : Reactive or incompatible with the following materials: Strong oxidizing materials
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Paraffin waxes and Hydrocarbon waxes sodium dodecyl sulphate	LD50 Dermal	Rat - Male, Female	>2000 mg/kg	-
	LD50 Oral	Rat - Male, Female	>5000 mg/kg	-
	Inhalation Dusts and mists	-	1.51 mg/l	4 hours
	LD50 Dermal	Rat - Male, Female	>2000 mg/kg	-
	LD50 Oral	Rat - Female	977 mg/kg	-

Conclusion/Summary : Based on available data, the classification criteria are not met.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Paraffin waxes and Hydrocarbon waxes sodium dodecyl sulphate	Eyes - Not irritant	Rabbit	-	1 s	-
	Skin - Not irritant	Rabbit	-	4 hours	-
	Eyes - Severe irritant	Rabbit	-	-	-
	Skin - Irritant	Rabbit	-	24 hours	-

Conclusion/Summary

- Skin** : Causes skin irritation.
- Eyes** : Causes serious eye irritation.
- Respiratory** : Not available.

Sensitization

Product/ingredient name	Route of exposure	Species	Result
Paraffin waxes and Hydrocarbon waxes	skin	Guinea pig	Not sensitizing
sodium dodecyl sulphate	skin	Guinea pig	Not sensitizing

Conclusion/Summary

Section 11. Toxicological information

Skin : Based on available data, the classification criteria are not met.

Respiratory : Not available.

Mutagenicity

Product/ingredient name	Test	Experiment	Result
Paraffin waxes and Hydrocarbon waxes sodium dodecyl sulphate	Ames	Subject: Bacteria	Negative
	-	Subject: Mammalian-Animal	Negative
	OECD 474	Subject: Mouse	Negative
	OECD 471, Ames	Experiment: In vitro Subject: Bacteria	Negative
	OECD 476	Experiment: In vitro Subject: Mouse	Negative
	OECD 478	Subject: Mouse	Negative

Conclusion/Summary : Based on available data, the classification criteria are not met.

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
1,3-didecyl-2-methyl-1H-imidazolium chloride	Category 3	-	Respiratory tract irritation
sodium dodecyl sulphate	Category 3	-	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : No known significant effects or critical hazards.

Skin contact : Causes skin irritation.

Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : No specific data.

Section 11. Toxicological information

- Skin contact** : Adverse symptoms may include the following:
irritation
redness
- Ingestion** : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

Long term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

Potential chronic health effects

Product/ingredient name	Result	Species	Dose	Exposure
Paraffin waxes and Hydrocarbon waxes	Chronic Dermal	Mouse - Male	≥150 mg/kg	2 years
	Sub-chronic Oral	Rat - Male, Female	1500 mg/kg	90 days

- Conclusion/Summary** : Based on available data, the classification criteria are not met.
- General** : No known significant effects or critical hazards.
- Carcinogenicity** : No known significant effects or critical hazards.
- Mutagenicity** : No known significant effects or critical hazards.
- Reproductive toxicity** : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
Surfactode refill paste	24183.2	N/A	N/A	N/A	37.1
Paraffin waxes and Hydrocarbon waxes	N/A	N/A	N/A	N/A	N/A
sodium dodecyl sulphate	977	N/A	N/A	N/A	1.5

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
sodium dodecyl sulphate	Acute EC50 >120 mg/l	Algae - <i>Desmodesmus subspicatus</i>	72 hours
	Acute EC50 5.55 mg/l	Daphnia - <i>Ceriodaphnia dubia</i>	48 hours
	Acute LC50 29 mg/l	Fish - <i>Pimephales promelas</i>	96 hours
	Chronic NOEC 0.88 mg/l	Daphnia - <i>Ceriodaphnia dubia</i>	7 days
	Chronic NOEC ≥1.36 mg/l	Fish - <i>Pimephales promelas</i>	42 days

Section 12. Ecological information

Conclusion/Summary : Based on available data, the classification criteria are not met.

Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
sodium dodecyl sulphate	OECD 301B	95 % - Readily - 28 days	-	-

Conclusion/Summary : There are no data available on the mixture itself.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
sodium dodecyl sulphate	-	-	Readily

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
sodium dodecyl sulphate	0.83	3.9 to 5.3	Low

Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Mobility : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	TDG Classification	DOT Classification	ADR/RID	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-	-	-
Transport hazard class(es)	-	-	-	-	-
Label					
Packing group	-	-	-	-	-
Environmental hazards	No.	No.	No.	Marine Pollutant: No	No.

Section 14. Transport information

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments : Not applicable.

Section 15. Regulatory information

Canadian lists

Canadian NPRI : None of the components are listed.

CEPA Toxic substances : None of the components are listed.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Eurasian Economic Union : **Russian Federation inventory:** All components are listed or exempted.

Taiwan : All components are listed or exempted.

Viet Nam : All components are listed or exempted.

Section 16. Other information

History

Date of printing : 2023-09-27

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Version : 1

Key to abbreviations : ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
DOT = Department of Transportation
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
HPR = Hazardous Products Regulations
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
N/A = Not available
RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail
SGG = Segregation Group

Section 16. Other information

TDG = Transportation of Dangerous Goods

UN = United Nations

Procedure used to derive the classification

Classification	Justification
SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A	Calculation method Calculation method

References : Not available.

✔ Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.