


SAFETY DATA SHEET

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 CSGI <small>Center for Surface Science</small> <small>Center for Surface Science</small>	deffner & Johann
<p align="center">NANORESTORE CLEANING POLAR COATINGS</p> <p>Art. Nr.: 2090 000</p>	
<p align="right">Date of compilation: 18/12/2015 Revision: 0 of 18/12/2015</p> <p align="center">MATERIAL SAFETY DATA SHEET In accordance with Regulation (EC) 1907/2006 and Regulation 830/2015</p>	

1. Identification of the substance/mixture and of the company/enterprise

1.1 Product identifier: **NANORESTORE CLEANING POLAR COATING S** (Art. Nr.: 2090 000)

1.2 Relevant identified uses of the substance or mixture:

Professional use

1.3 Details of the supplier of the safety data sheet:

Deffner & Johann GmbH
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2. Hazards identification

2.1 Classification of the substance or mixture

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

Flammable liquid (category 2)

Skin irritation (category 2)

Eye irritation (category 1)

Hazard statement Code(s):

H225 - Highly flammable liquid and vapour.

H315 - Causes skin irritation.

H319 - Causes serious eye irritation.

The product is a liquid that ignites easily at temperatures < 23 °C if it exposed to an ignition source.

2.2. Label elements:

Pictogram, Signal Word Code(s):

Danger



Hazard statement Code(s):

H225 - Highly flammable liquid and vapour.

H315 - Causes skin irritation.

H319 - Causes serious eye irritation.

Supplemental Hazard statement Code(s):

EUH066 - Repeated exposure may cause skin dryness or cracking.

Precautionary statements:

Prevention

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

P233 - Keep container tightly closed

P243 - Take precautionary measures against static discharge

Response

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

P337+P313 - If eye irritation persists: get medical advice/attention

P370+P378 - In case of fire: Use CO₂, foam, chemical powder for flammable liquids to extinguish

Storage

P403+P235 - Store in a well-ventilated place. Keep cool.

2.3 Other hazards:

none information

3. Composition/Information on ingredients

3.2 Mixtures

Chemical composition:

Name	Concentration (C)	Classification	
		Regulation CE/1272/2008	
Propylene carbonate Cas No 108-32-7 CE No 203-572-1 Index No 607-194-00-1	4 ≤ C ≤ 10	Eye Irrit. 2	H319
Ethyl acetate Cas No 141-78-6 CE No 205-500-4 Index No 607-022-00-5 Reg. No 01-2119475103-46-xxxx	4 ≤ C ≤ 10	Flam. Liq. 2 Eye Irrit. 2 STOT SE 3	H225 H319 H336 EUH 066
1-Pentanol Cas No 71-41-0 CE No 200-752-1 Index No 603-200-00-1	3 ≤ C ≤ 9	Flam. Liq. 3 Skin Irrit. 2 Eye Irrit. 2 Acute Tox. 4 STOT SE	H226 H315 H319 H332 H335
Sodium dodecyl sulphate Cas No 151-21-3 CE No 205-788-1	2 ≤ C ≤ 4	Flam. Sol. 2 Acute Tox. 4 Acute Tox. 4 Skin Irrit. 2 Eye Dam. 1 STOT SE 3 Aquatic Chronic 3	H228 H332 H302 H315 H318 H335 H412

The full text of hazard statements is specified in section 16.

4. First-aid measures

4.1 Description of first aid measures

Inhalation

Remove to fresh air. If breathing is irregular seek medical advice.

Skin contact

Take off immediately all contaminated clothing and wash with plenty of water and soap. Seek medical attention. Wash contaminated clothing before using them.

Eyes contact

Irrigate copiously with clean, fresh water for at least 15 minutes, keeping eyelids well- opened. Seek medical attention.

Ingestion

Obtain medical attention immediately. Induce vomiting only if it is indicated by the doctor. Never give anything by mouth to an unconscious person.

Other

Change contaminated clothing.

4.2. Most important symptoms and effects, both acute and delayed

Not available

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

Not available

5. Fire-fighting measures

5.1 Extinguishing media

Advised extinguishing agents:

CO₂, foam, chemical powder for flammable liquids.

Unappropriate extinction methods:

Water jets.

Water may not be effective to extinguish the fire, nevertheless it should be used to cool containers exposed to flames and prevent fires and explosions. For leakage and spillage that have not caught fire, nebulized water may be used to disperse the flammable vapors and protect the people involved in stopping the leakage.

5.2. Special hazards arising from the substance or mixture

The product under fire condition may develop irritant/toxic gas (CO_x, SO_x)

5.3. Advice for firefighters

Wear equipment complete with helmet and face shield and protection of the neck, breathing apparatus at pressure or demand, insulative jacket and trousers, with bands around the arms, legs and waist.

Closed containers exposed to heat from fire may build pressure and explode. Contaminated water used to extinguish fire must be disposed in accordance with the laws.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency dust procedures

Avoid the contact with skin and eyes. In the case of vapor formation use suitable protective

devices. Supply a good air circulation. Move away any unauthorised person. Eliminate or exclude any source of ignition.

6.2. Environmental precautions

Collect the product in suitable container for disposal. Notify authorities if product enters sewer or public waters.

6.3. Methods and material for containment and cleaning up

Cover the spillage with inert absorbent material. Collect spilled material and place in containers for later disposal. Use water only to remove residuals, so as to prevent the spillage of the product in the sewers.

6.4 Reference to other sections

Refer to paragraphs 8 and 13 for more information

7. Handling and storage

7.1. Precautions for safe handling

Proper ventilation of the workplace. Vapours may ignite with explosion, it is therefore necessary to avoid accumulation keeping the windows and doors open, ensuring cross ventilation. Without adequate ventilation, the vapors may accumulate at the bottom and ignite at a distance, if triggered off, with the risk of flashback. Ground-bond container and receiving equipment during transfer operations and wear antistatic boots. Avoid the accumulation of electrostatic charge: Use only non-sparking tools. The strong vigorous stirring and flow of the liquid in the pipes and equipment may cause the formation and accumulation of electrostatic charges due to the low conductivity of the product. To avoid the danger of fire and explosion never use compressed air during movement. Open containers with caution because they may be under pressure. Do not handle until you have read and understood all warnings.

7.2. Conditions for safe storage, including any incompatibilities

Store closed containers in a cool, well-ventilated area away from ignition sources. Keep away from heat, sparks and flames, do not smoke, use matches or lighters.

7.3. Specific end use(s)

For particular uses of the product, is necessary to refer to the specific information or contact the technical service of the Company.

8. Exposure controls/ personal protection

8.1. Control parameters

Ethyl acetate:

DNEL:

Systemic effects for short-term exposure -inhalation: 1468 mg / m³

Systemic effects for long exposure termine- skin: 63 mg / kg

Systemic effects from exposure to long-term inhalation: 734 mg / m³

Local effects from exposure to long-term inhalation: 734 mg /

Local effects from exposure to short-term inhalation 1468 m / m³

PNEC:

Freshwater: 0:24 mg / L

sea water: 0.024 mg / L

Water (intermittent release): 1.65 mg / L

STP: 650 mg / L

Sediment (freshwater): 1.15 mg / kg

sediment (sea water): 0115 mg / kg

Soil: 0.148 mg / kg

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Oral: 0.2 g / kg

SU3	industrial use
SU22	Professional uses
PC21	Laboratory chemical
PC20	regulators, flocculants, precipitants, neutralization agents
PROC3	-Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (SU3)
PROC4	-Chemical production where opportunity for exposure arises (SU3)
PROC5	-Mixing or blending in batch processes (SU3)
PROC8b	-Transfer of substance or mixture (charging and dis charging) at dedicated facilities (SU3)
PROC9	-Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (SU3)
PROC15	-Use as laboratory reagent (SU3, SU22)
ERC1	-Manufacture of the substance (SU3)
ERC2	-Formulation into mixture (SU3)
ERC6b	-Use of reactive processing aid at industrial site (no inclusion into or onto article) (SU3)
ERC4	-Use of non- reactive processing aid at industrial site (no inclusion into or onto article) (SU3, SU22)
ERC8a	-Widespread use of non- reactive processing aid (no inclusion into or onto article, indoor) (SU22)
Concentration of the Substance in Mixture / Article	Includes percentage substance in the product up to 100% (unless stated differently)
Physical Form (at time of use)	Liquid medium volatile
Exposure duration per day	> 4 h
Frequency of use	220 days / year
Technical conditions and measures to control dispersion of the source to workers	Provide adequate ventilation. It requires a good working practice. Ensure that operators are trained to minimize exposure.
Conditions and measures related to	Wear suitable gloves tested to EN374., See Section 8 for personal protective equipment.

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personal protection, hygiene and health evaluation	Without local ventilation: Dermal 0.343 mg / kg body weight / day Without local ventilation: Inhalation 25.699 mg / m ³
Other operational conditions affecting workers in the work	Outdoor / Indoor: Indoor

8.2 Exposure controls

Avoid all unnecessary exposure, handle in accordance with good industrial hygiene and safety procedures. Avoid contact with the eyes and skin .Do not eat, drink or smoke while handling it. Accurately wash the hands with soap and water before meals.

Individual protection

The DPI's choice must be done on the basis of the test's results obtained according to the rule EN 374

Hand protection : protective gloves of butyl, latex. Penetration time of glove material: the exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

Eye protection : protective goggles

Skin protection : suitable protective clothing

Respiratory protection : mask with filter (Type ABEK) in case of vapor formation et/or insufficient ventilation

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical and chemical properties	Value	Determination method
Appearance	colorless liquid	
Odour	characteristic	
Odour threshold	not available	
pH	6-7	
Melting point/freezing point	not available	
Initial boiling point and boiling range	not available	
Flash point	15° C	DIN EN ISO 3679
Evaporation rate	not available	
Flammability (solid, gas)	not pertinent	
Upper/lower flammability or explosive limits	not pertinent	
Vapour pressure	not available	
Vapour density	not available	
density	0.96 g/cm ³	
Solubility	not pertinent	
Water solubility	not pertinent	
Partition coefficient: n-octanol/water	not available	
Auto-ignition temperature	not available	
Decomposition temperature	not available	
Viscosity	not available	
Explosive properties	not explosive	
Oxidising properties	not oxidizing	

9.2. Other information

VOC (Directive 1999/13/CE): 15-20%

10. Stability and reactivity

10.1. Reactivity

In contact with strong oxidants exothermal reaction may occur.

Ethyl acetate: Reacts with strong oxidants, acids or bases.

10.2. Chemical stability

The product is stable in normal conditions of use and storage.

10.3. Possibility of hazardous reactions

Ethyl acetate: heating may cause violent combustion or explosion.

10.4. Conditions to avoid

No data available

10.5. Incompatible materials

Ethyl acetate: attacks aluminum and plastics.

10.6. Hazardous decomposition products

Due to thermal decomposition or in the event of a fire vapours may be produced potentially dangerous to health (CO_x, SO_x).

Ethyl acetate: the substance decomposes under the influence of UV light, bases, acids.

11. Toxicological information

11.1. Information on toxicological effects

ATE(mix) oral = 32566,9 mg/kg

ATE(mix) inhal = 100,0 mg/l/4 h

Acute effects:

(a) acute toxicity: based on available data, the classification criteria are not met.

(b) skin corrosion/irritation: if brought into contact with the skin, the product causes significant inflammation with erythema, scabs, or edema.

(c) serious eye damage/irritation: if brought into contact with eyes, the product, causes significant irritations which may last for more than 24 hours.

(d) respiratory or skin sensitization: based on available data, the classification criteria are not met.

(e) germ cell mutagenicity: based on available data, the classification criteria are not met.

(f) carcinogenicity: based on available data, the classification criteria are not met.

(g) reproductive toxicity: based on available data, the classification criteria are not met.

(h) specific target organ toxicity (STOT) single exposure: based on available data, the classification criteria are not met.

(i) specific target organ toxicity (STOT) repeated exposure based on available data, the classification criteria are not met.

(j) aspiration hazard: based on available data, the classification criteria are not met.

Propylen carbonate:

LD50: > 5000 mg/kg bw (oral, rat)

Ethyl acetate:

at average vapour concentrations ethyl acetate has an irritating effect on the mucous membranes; at higher vapour concentration it has a narcotic effect. The same effect occurs after swallowing. Symptoms experienced after inhalation are a scratching sensation in the throat, loss of appetite, abdominal pain and headaches. Higher concentrations can cause subnarcotic to narcotic symptoms and possibly respiratory paralysis, depending on the quantity

absorbed. Hypersensitivity reactions have been observed after chronic exposure. Due to the defatting effect eczema is possible.

ROUTES OF EXPOSURE: the substance can be absorbed into the body by inhalation of its vapors.

INHALATION RISK: a harmful contamination of the air can be reached rather quickly on evaporation of this substance at 20° C.

EFFECTS OF SHORT-TERM: the substance 'irritating to eyes and respiratory tract. The substance may cause effects on the central nervous system Exposure far above OEL may result in death.

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE: The liquid defats skin.

ACUTE HAZARDS / SYMPTOMS

INHALATION Cough. Vertigo. Drowsiness. Headache. Nausea. Sore throat. Unconsciousness. Weakness.

SKIN Dry skin. Bloodshot eyes. Pain.

NOTE: the use of alcoholic beverages enhances the harmful effect.

LD50: 5620 mg/kg (oral, rat)

LD50: >20000 mg/kg (dermal, rabbit)

1-Pentanol:

LD50: 3645 about mg/kg bw (oral, rat)

LD50: 2292 mg/kg bw (dermal, rabbit)

Sodium dodecyl sulphate:

LD50: 977 mg/kg bw (oral, rat)

12. Ecological information

12.1. *Toxicity*

Use this product according to good working practices. Avoid litter. Inform the competent authorities, should the product reach waterways or sewers or contaminate soil or vegetation.

Propylen carbonate

LC50 > 1000 mg / L / 96h (Cyprinus carpio)

EC50: > 1000 mg / L / 48h (Daphnia magna)

Ethyl acetate:

LC50: 230 mg/l/96h (Pimephales promelas)

EC50: 590 mg/l/48h (Daphnia magna)

1-Pentanol:

LC50: 530 mg / L / 96h (Danio rerio)

EC50: 341.21 mg / L / 48h (Daphnia magna)

Sodium dodecyl sulphate:

LC50: 29 mg / L / 96h (Pimephales promelas)

LC50: 3.15 mg / L / 48h (Artemia salina)

12.2. *Persistence and degradability:*

Propylen carbonate: readily biodegradable. Degradability: 87.1% (29 days)

Ethyl acetate: Degr. ab. 69% (20 days)

1-Pentanol: readily biodegradable. Degradability: 100% (18 days)

Sodium dodecyl sulphate: Readily biodegradable. Degradability: 75.5% (35 days)

BCF ca. 1.5

12.3. *Bioaccumulative potential:*

Propylen carbonate: LogPow: 0.0788

Ethyl acetate: logPow: 0.68

1-Pentanol: logPow 1:34

Sodium dodecyl sulphate: logPow <= -2.03

12.4. *Mobility in soil:* not available

12.5. Results of PBT and vPvB assessment: not available

Propylen carbonate: the substance is not PBT / vPvB

Ethyl acetate: the substance is not PBT / vPvB

1-Pentanol: the substance is not PBT / vPvB

Sodium dodecyl sulphate: the substance is not PBT / vPvB

12.6. Other adverse effects: not available

This product doesn't contain AOX

13. Disposal considerations

13.1. Waste treatment methods

Operate following the current Local or National Laws.

The non reclaimed containers have to be disposed as the product.

14. Transport information

14.1. UN number

1993

If subject to the following characteristics is ADR exempt:

Combination packagings: per inner packaging 1 L per package 30 Kg

Inner packagings placed in skrink-wrapped or stretch-wrapped trays: per inner packaging 1 L per package 20 Kg



14.2. UN proper shipping name

Flammable liquid, n.o.s (contains Ethyl acetate, 1-Pentanol)

14.3. Transport hazard class(es)

Class : **3**

Label : **3**

Tunnel restriction code : D/E

Limited quantities : 1 L

EmS : F-E, S-E

14.4. Packing group

II

14.5. Environmental hazards

Product is not environmentally hazardous

Marine polluting agent : Not

14.6. Special precautions for user

No data available.

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

It is not intended to carry bulk

15. Regulatory information

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

Regulation	Cas	Substance
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428/2009 ex CE 1334/2000 Ann.1	-	-
273/04 Tab.1 Cat.1	-	-
273/04 Tab.1 Cat.2	-	-
273/04 Tab.1 Cat.3	-	-
Reg. CE 1907/2006 Ann. XIV	-	-
Reg. CE 1907/2006 Substances SVHC	-	-
Reg. CE 1907/2006 Ann. XVII	-	-
2003/105/CE Ann.1 part 1	-	-
2003/105/CE Ann.1 part 2	-	-
2012/18/UE Ann.1 part 1	-	Mixture HIGHLY FLAMMABLE
2012/18/UE Ann.1 part 2	141-78-6 71-41-0 151-21-3	Ethyl acetate 1-Pentanol Sodium dodecyl sulphate

15.2. Chemical safety assessment

none

16. Other information

Description of the sentences of risk set out in paragraph 3:

H319 = Causes serious eye irritation
H225 = Highly flammable liquid and vapour
H336 = May cause drowsiness or dizziness
H226 = Flammable liquid and vapour
H315 = Causes skin irritation
H332 = Harmful if inhaled
H335 = May cause respiratory irritation
H228 = Flammable solid
H302 = Harmful if swallowed
H318 = Causes serious eye damage
H412 = Harmful to aquatic life with long lasting effects
EUH066 - Repeated exposure may cause skin dryness or cracking

Classification based by calculation on data of all components of the mixture.

GENERAL BIBLIOGRAPHY:

1. Regulation (EC) 1907/2006 of the European Parliament (REACH)
2. Regulation (EC) 1272/2008 of the European Parliament (CLP) and its amendments and adjustments
3. Regulation (EC) 790 / 2009
4. Regulation (EU) 453/2010
5. Regulation (EU) 830/2015
6. The Merck Index. Ed 10
7. Handling Chemical Safety
8. NIOSH - Registry of Toxic Effects of Chemical Substances
9. INRS - Fiche Toxicologique
10. Patty - Industrial Hygiene and Toxicology
11. NI Sax - Dangerous Properties of Industrial Materials-7, 1989 Edition
12. ADR Directive 2008/68/CE and its amendments and adjustments
13. ECHA Web site <http://echa.europa.eu/web/guest>
14. Directive 2012/18/UE

15. Directive 2009/161/UE

Note for users:

The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product .This document must not be regarded as a guarantee on any specific product property.The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses

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