

SAFETY DATA SHEET

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1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**1.1. Identification of the substance/mixture: SPECTRAL H 6145 HARDENER**

1.2. Use of the substance/mixture: This product is the second essential component for hardening SPECTRAL KLAR 545. The product is the solution of poliisocyanates resin in organic solvents.

1.3. Company/undertaking identification: **NOVOL Sp. z o.o.** Tel: +48 61 810-98-00
ul. Żabikowska 7/9 Fax: +48 61 810-98-09
62-052 Komorniki www.novol.pl

Competent person responsible for the Safety Data Sheet: dokumentacja@novol.pl
1.4 Emergency tel: +48 61 810-99-09 available: 7.00 – 15.00

2. HAZARD IDENTIFICATION

HEALTH HAZARDS: Irritant product. May cause sensitization by skin contact Repeated exposure may cause skin dryness or cracking. Vapours may cause drowsiness and dizziness.

DANGEROUS PROPERTIES: Flammable liquid; avoid contact with strong oxidants.

OTHER: CO₂ is generated in reaction with water

3. COMPOSITION / INFORMATION ON INGREDIENTS

EEC No.	Name of the substance	WE No.	CAS No.	Classification of the substance	Marking of the substance	Composition
--	Hexamethylene diisocyanate, oligomers	--	28182-81-2	Xi; R43	Xi R: 43 S: (2-)-24/25	50-55%
615-011-00-1	Hexamethylene diisocyanate	212-485-8	822-06-0	T;R23 Xi; R36/37/38 R42/43	T R:23-36/37/38-42/43 S: (1/2-)-26-28-38-45	< 0.14%
--	3-Isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate, oligomers	500-125-5	53880-05-0	Xi; R43	Xi R: 43 S: (2-)-24/25	10-20%
615-008-00-5	3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate	223-861-6	4098-71-9	T; R23 XI; R36/37/38 R42/43 N; R51-53	T, N R: 23-36/37/38-42/43-51/53 S: 1/2-26-28-38-45-61	<0,12%
607-025-00-1	Butyl acetate	204-658-1	123-86-4	R10 R66-67	R: 10-66-67 S: (2-)25	20-30%

4. FIRST AID MEASURES

GENERAL INFORMATION: See 11 point Product Data Sheet.

INHALATION: Take the casualty into the fresh air and keep warm irregular breathing/no breathing artificial respiration call a physician.

SKIN: Take off soiled clothes. Wash off with plenty of lukewarm water (at least 15 minutes). Consult a doctor in the event of skin reaction.

EYES: Hold the eyes open and rinse immediately with plenty of lukewarm water (at least 15 minutes). Contact with ophthalmologist.

ALIMENTARY TRACT: Do not provoke vomiting (risk of choking). Medical help is required.

5. FIRE-FIGHTING MEASURES

FIRE EXTINGUISHING SUBSTANCES: Powder, foam resistant to alcohols, carbon dioxide, watermist.

SPECIAL HAZARDS: Fire may cause the generation of carbon monoxide, nitric oxides, isocyanate fumes and trace amounts of hydrogen cyanide. Penetration of contaminated extinguishing underground water or surface water must be prevented.

PROTECTIVE EQUIPMENT: Firemen have to wear self-contained breathing apparatus and protective clothing.

OTHER INFORMATION: Cool adjacent tanks by spraying water from a safe distance.

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6. ACCIDENTAL RELEASE MEASURES

PERSONAL PROTECTION: Eliminate sources of ignition. Ensure sufficient ventilation in this room. Avoid direct contact with the released substance. Avoid contact with skin and eyes. Put on protective equipment see chapter 8.

PROTECTION OF THE ENVIRONMENT: Prevent to get through to the sewage system, to the surface water, underground water, to the soil. In case of a major spillage the affected area should be separated with bounds.

ACTION IN CASE OF SPILLAGE: Stop the spillage (close the flow of the liquid, seal the gaps). Remove the substance mechanically. The remaining quantity should be covered with a layer of humid material suitable for fixing liquids (e.g. wood flour, preparation for fixing chemicals based on hydrated calcium silicate, sand). After approx. 1 hour collect the covering layer into a waste container. Do not close the container (CO₂ is being released). Leave for several days in a secure place outdoors while maintaining the material in a humid condition. For further disposal measures: see chapter 13.

7. HANDLING AND STORAGE

HANDLING RULES: Keep away from heat and sources of fire. Do not smoke. Do not inhale vapours. Avoid contact with skin and eyes. Take precautionary measures against electrostatic loading. Attention – in the reaction with moisture CO₂ is generated and increase pressure in the container. Use only in well ventilated place. Put on protective equipment-see chapter 8.

STORAGE: Keep in sealed containers in cool, well ventilated rooms. Storage in the vicinity of a large quantity of organic peroxides or strong oxidants is prohibited.

PECULIAR APPLICATION: See the technical product data sheet.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

LIMIT VALUES:

for Butyl acetate CAS 123-86-4 according to:

- Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:1003(1995)]: TWA 150 ppm, 724 mg/m³, STEL 200ppm, 966 mg/m³

for 3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate CAS 4098-71-9 according to:

- TRGS 900: MAK: 0,005ppm(ml/m³), 0,046 mg/m³, 1; =2=(I),DFG, 12, Sa

For Hexamethylene diisocyanate CAS 822-06-0 according to:

- TRGS 900: MAK: 0,005ppm(ml/m³), 0,035 mg/m³, 1; =2=(I),DFG, 12, Sa

Do not use that product if you are suffer for hypersensitivity of the airways (eg asthma, chronic inflammation of airways).

RESPIRATORY TRACT PROTECTION: Gas mask with A2-P2.type absorbing canister (EN 141).

PROTECTION OF HANDS: Protective gloves suitable for handling solvents (viton, rubber latex, thickness >0,35mm only suitable for brief exposure (PN-EN 374-3:1999)).

EYES PROTECTION: Protective glasses.

SKIN PROTECTION: Suitable protective clothing (antistatic,impregnated clothing).

WORKPLACE: Topical stays and exhausting ventilation.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:	liquid
Colour:	colourless
Smell:	pungent, penetrating odour
Boiling point:	126-145°C
Flash-point:	25°C
Autoignition point:	approx.370°C
Density:	approx.1.0 g/cm ³ (20°C)
Water solubility:	insoluble
Viscosity:	20 s
Explosion limits:	% lower: 1.0 vol.% upper: 8.0 vol.% (butyl acetate)
Vapour pressure:	--

10. STABILITY AND REACTIVITY

STABILITY: The product remains stable under normal conditions.

AVOID THE CONTACT OF THE MATERIAL WITH: Strong oxidants, high temperature, strong acids and basis. Exothermic reaction with amines and alcohols, slow release of CO₂ in case of contact with water; pressure build-up in closed containers, danger of bursting of the containers

DANGEROUS DECOMPOSITION PRODUCTS: Carbon monoxide, nitric oxides, isocyanate fumes, trace amounts of hydrogen cyanide and other toxic gasses are generated as a result of thermal decomposition. Making oxidants is possible.

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11. TOXICOLOGICAL INFORMATION

Toxicological studies at the preparation are not available.

TOXICITY:

Butyl acetate: LD₅₀ (rat, oral) 14000 mg/kg
LC₅₀ (rat, inhalation) 9660 mg/m³/8h

3-Isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate, oligomers:
LD₅₀ (rat, oral) > 20.000 mg/kg
LC₅₀ (rat, inhalation) > 5 mg/l, 4 h

3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate:
LD₅₀ (rat, oral) > 2.000 mg/kg
LC₅₀ (rat, inhalation) 40 mg/l, 4 h

IRRITATING EFFECT: Skin: irritating to skin and mucous membranes.
Eyes: irritating effect.
Irritation and other symptoms (difficulty in breathing, cough, asthma) may appear with time lag.

SYMPTOMS OF POISONING: Headache and vertigo, fatigue, decreased muscle power, sleepiness and, in exceptional instances, loss of consciousness. If swallowed, the substance may cause irritation of the alimentary tract, nausea, vomiting, and diarrhoea.

12. ECOLOGICAL INFORMATION

Ecological studies at the preparation are not available.

Butyl acetate: ID-Number: 42
Classification under Hazard to Water: 1
3-isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate: Daphnia magna EC50 27 mg/l 48 h
3-Isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate, oligomers: Daphnia magna EC50 > 3,36 mg/l 24 h

The product is very poorly soluble in water. Keep away from the sewage system, surface water, underground water, and soil. The product in the contact with water changes in solid, insoluble substance (polycarbamide). At the same time CO₂ changes.

13. DISPOSAL CONSIDERATIONS

RECOMMENDATION: Product must be disposed of by special means in accordance with local regulations.

REMAINS OF PRODUCT: Remains of product in the tin should be carefully remove and harden using suitable clearcoat. It is allowed add to hardener mixed with clearcoat some damp sand or water. Harden product is not harmfully substance and could be treat like plastics wastes (in accordance with the regulations).
code of waste: 08 05 01*

ATTENTION: Remains should be harden in small portions far from flammable substances. Much amount of heat is emitting in the time of reaction!

CLEAN TIN: Tin carefully clean is not harmful waste. code of waste: 15 01 04

TIN PARTLY EMPTY: See remains of product. Tin containing the remains of product is hazardous waste.
code of waste: 15 01 10

14. TRANSPORT INFORMATION

GENERAL INFORMATION: Do not transport with materials class 1 (with the exception of materials class 1.4S) and with some of materials class 4.1 and 5.2. Avoid direct contact with materials class 5.1 and 5.2 in the time of transport. Do not use naked flame and do not smoke.

ADR/RID: UN 1866 RESIN SOLUTIONS, FLAMMABLE, 3, III.

UN No.	Name of the raw material	Hazard identification number	Warning label required	Classification Code	Packaging group
1866	RESIN SOLUTIONS, FLAMMABLE	30	3	F1	III

IMDG- Code: RESIN SOLUTIONS, FLAMMABLE, CLASS 3, UN 1866, PG III.
EmS: F-E, S-E

ICAO/IATA: No data available.

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15. REGULATORY INFORMATION

Safety data sheet in accordance with Directives:

67/548/EWG(2006/121/WE)
91/155/EWG (2001/58/WE)
1999/45/EC (2006/8/WE)
2006/1907/WE REACH
1272/2008/WE

Other regulations: ADR (2009-2011) , IMDG Code 2008 Edition

CONTAINS: Contains Isocyanates.. See information supplied by manufacturer.

HAZARD SYMBOL(S) Xn Irritant



RISK-PHRASES: R10 Flammable.
R43 May cause sensitization by skin contact.
R66 Repeated exposure may cause skin dryness or cracking.
R67 Vapours may cause drowsiness and dizziness.

SAFETY-PHRASES: S (2-) Keep out of the reach of children.
S 23 Do not breathe vapour/spray.
S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
S 38 In case of insufficient ventilation, wear suitable respiratory equipment
S 46 If swallowed, seek medical advice immediately and show this container or label.

16. OTHER INFORMATION

Full text of the R Phrases from section 2 and 3:

R10 Flammable
R23 Toxic by inhalation
R36/37/38 Irritating to eyes, respiratory system and skin.
R42/43 May cause sensitization by inhalation and skin contact.
R43 May cause sensitization by skin contact
R66 Repeated exposure may cause skin dryness or cracking.
R67 Vapours may cause drowsiness and dizziness.
R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Information contained herein is based on our current knowledge. This document does not constitute a warranty for product characteristics.

Changes: General update.

Training: In terms of conduct, occupational health and safety with hazardous substances and mixtures. In terms of transport of dangerous goods in accordance with the requirements of ADR.

Issued by: NOVOL Sp. z o.o.

Information: Laboratory Research and Development; tel. +48 61 810 99 09