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

1.1 Product ID: 2K MS ACRYLIC HARDENER SOLL H4 25 (NORMAL)
Art. No. C4 06N; C4 15N; C4 75N

1.2 Relevant identified uses of the substance or mixture and uses advised against:
Identified uses: "Normal" hardener designed to use with 2K MS acrylic clearcoat SOLL C4
Advices against uses: not specified

1.3 Data of the supplier Safety Data Sheet:
Manufacturer:
UAB HELVINA
Parko str. 96, Ramuciai
LT-54464 Kaunas district
Lithuania
Tel.: +370 37308901 / Fax: +370 37308902
E-mail: info@helvina.lt / www.helvina.lt

1.4 Emergency telephone number:
Poison control and information office: Tel.: +370 5 236 2052 or +370 687 53378

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture
Classification 67/548/EEC
R10
R43
R66
R67
Classification 1272/2008
Flam. Liq. 3; H226
Skin Sens. 1; H317
STOT SE 3; H336

Hazard to human health
May cause an allergic skin reaction. May cause drowsiness or dizziness.
Environmental hazards
The product is not classified as dangerous for the environment.
Physical/chemical hazards
Flammable liquid and vapour.

2.2 Label elements:
Pictogram(s):

Signal word: **Warning**

Hazard statements:
H226 – Flammable liquid and vapour.
H317 – May cause an allergic skin reaction.
H336 – May cause drowsiness or dizziness.

EUH066 – Repeated exposure may cause skin dryness or cracking.
EUH208 – Contains 1,6- Hexamethylene diisocyanate. May produce an allergic reaction.

Precautionary statements:
P210 – Keep away from heat / sparks / open flames / hot surfaces – No smoking.
P280 – Wear protective gloves / protective clothing / eye protection / face protection.
P302 + P352 – IF ON SKIN: Wash with soap and water.
P304 + P340 – IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P333 + P313 – If skin irritation or a rash occurs: Get medical advice / attention.

Contains: n-butyl acetate (CAS: 123-86-4), 1,6- Hexamethylene diisocyanate homopolymer (CAS: 28182-81-2)

2.3 Other hazards:
No other hazards.
No information on the fulfilment of the criteria for PBT or vPvB in accordance with Annex XIII of the REACH Regulation. Appropriate studies have not been conducted.

SECTION 3: Composition / information on ingredients

3.1 Substances:
Not applicable.

3.2 Mixtures:
Hazardous ingredients:

Product identification	Content %	Classification 67/548/EEC	CLP classification	
			Hazard class and category codes	Phrases codes indicating type of hazard
n-butyl acetate CAS: 123-86-4 EINECS: 204-658-1 Index no: 607-025-00-1 REACH no: 01-2119485493-29-XXXX	45 – 60	R10, R66, R67	Flam. Liq. 3 STOT SE 3	H226 H336
1,6- Hexamethylene diisocyanate homopolymer CAS: 28182-81-2 EINECS: 500-060-2 Index no: - REACH no: 01-2119485796-17-XXXX	25 – 35	R43	Skin Sens. 1	H317
2-Methoxy-1-methylethyl acetate CAS: 108-65-6 EINECS: 203-603-9 Index no: 607-195-00-7 REACH no: 01-2119475791-29-XXXX	5 - 10	R10	Flam. Liq. 3	H226
Dimethylbenzene – mixture of isomers CAS: 1330-20-7 EINECS: 215-535-7 Index no: 601-022-00-9 REACH no: 01-2119488216-32-XXXX	<5,5	R10  Xn: R20/21  Xi: R38	Flam. Liq. 3 Acute Tox. 4 Skin Irrit. 2	H226 H332 H312 H315
Ethylbenzene CAS: 100-41-4 EINECS: 202-849-4 Index no: 601-023-00-4 REACH no: substance is subject to the transitional period	<1,5	 F: R11  Xn: R20; R48/20; R65	Flam. Liq. 2 Acute Tox. 4 STOT RE 2 Asp. Tox. 1	H225 H332 H373 H304

1,6- Hexamethylene diisocyanate CAS: 822-06-0 WE: 212-485-8 Index no: 615-011-00-1 REACH no: 01-2119457571-37-XXXX	<0,3	 T: R23  Xi: R36/37/38 R42/43	Acute Tox. 3 Eye Irrit. 2 STOT SE 3 Skin Irrit. 2 Skin Sens. 1 Resp. Sens. 1	H331 H315 H335 H319 H317 H334

Full text of the R and H phrases provided in section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures
IF ON SKIN:
Wash contaminated skin with soap and water, rinse with water. If skin irritation or a rash occurs: contact a doctor.
IF IN EYES:
Rinse with plenty of water for about 15 minutes, holding the eyelids wide open. Avoid strong stream of water - risk of cornea damage, contact a doctor.
IF INHALED:
In case of dizziness or nausea remove victim to fresh air, call a doctor if there is no rapid improvement.
IF SWALLOWED:
Do NOT induce vomiting. Get immediate medical advice / attention. Do not give anything by mouth to an unconscious person.

4.2 The most important symptoms and effects, both acute and delayed:
Contact with skin: burning, itching, redness, allergic reactions, dryness, cracking of the skin after prolonged, direct exposure.
Contact with eyes: possible slight irritation
Respiratory system: irritation of nasal mucosa, throat and further parts of respiratory system, may depress central nervous system and adversely affect the internal organs – liver, kidney. Symptoms include headache, dizziness, drowsiness, weakness, in extreme cases loss of consciousness.
Gastrointestinal tract: chemical irritation of oral cavity, throat and further parts of gastrointestinal tract. After absorption may experience symptoms of food poisoning, abdominal pain, dizziness, nausea and vomiting. Ingestion of large amounts may cause liver and kidney damage.

4.3 Indications of any immediate medical attention and special treatment needed:
The decision on how to proceed take the doctor after examination of injured.

SECTION 5: Fire fighting measures

5.1 Extinguishing media:
Appropriate extinguishing media: alcohol-resistant foam or dry powder (A,B,C), carbon dioxide (CO_2 type extinguisher), sand or soil, water fog. Use suitable fire extinguishing methods depending on the conditions.
Inappropriate extinguishing media: Strong stream of water.

5.2 Special hazards arising from the substance or mixture:
During a fire, high temperatures can cause release of toxic decomposition products which contain inter alia: carbon oxides, nitrogen oxides. Vapours are able to form explosive mixtures with air. Heavier than air they accumulate in depressions or in lower parts of the room – can cause the phenomenon of flashback.

5.3 Advice for firefighters:
Cool containers situated in zone of fire by spraying water, if possible, remove from the danger zone. In case of fire in a closed room wear protective clothing and self-contained breathing apparatus. Do not allow to get through the extinguishing water to surface water, groundwater and sewage system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
For persons not being the members of aid giving staff: inform the appropriate service. Remove from the danger zone people not involved in the liquidation of accident. Remove all possible sources of ignition.

For persons giving aid: Ensure proper ventilation, use protective gloves, protective shoes and protective clothing. In the case of splashing of the product use protective glasses or protective mask. Do not breathe vapours. Use personal respiratory system protection.

6.2 Environmental precautions:
Prevent from spreading and leakage into sewage system and water reservoir. In case of inability inform the local authorities to provide protection.

6.3 Methods and materials for containment and cleaning up:
Prevent from spreading and remove by gathering on absorbent material (sand, sawdust, diatomaceous soil, universal absorbent). Contaminated material put in properly labelled containers for disposal in accordance with applicable regulations.

6.4 Reference to other sections
Disposal considerations – see section 13 of the Safety Data Sheet.
Personal protection measures – see section 8 of the Safety Data Sheet.

SECTION 7: Handling and storage

7.1 Precautions for safe handling:
Use only in well ventilated area. Avoid contact with eyes. Avoid prolonged or repeated contact with skin. Avoid spilling. Avoid breathing vapours. Do not allow to exceed the NDS value in the workplace for the product components. Avoid sources of ignition, heat, hot surfaces and open flames. Apply measures against electrostatic charges – appropriate neutralization and protective earthing during e.g. transferring contents of the containers. It is recommended to wear anti-static clothing and footwear during handling the product. Floor of the room where product is stored or used should be made of electrically conductive materials. Make sure if the electric lighting and wiring are working properly and do not constitute a potential source of ignition. Do not use cutting tools that cause sparks. Avoid inhalation of vapours / aerosols. Work in accordance with the principles of health and safety: do not eat and drink, do not smoke in the workplace, wash hands after use, remove contaminated clothing and protective equipment before entering eating areas.

7.2 Conditions for safe storage, including any incompatibilities:
Store in a cool (storage temperature 5 °C - 30 °C), dry, well-ventilated room. Store in properly labelled and tightly closed original container. Avoid direct sunlight and sources of heat, hot surfaces and open flames. If repackaging is necessary, make sure that the new packaging is suitable for the type of product. After opening close tightly containers and set upright to prevent leakage of the product. Do not store near oxidizing agents, strongly alkaline, strongly acidic products and combustible materials.

7.3 Special end use(s): normal hardener designed to use with 2K acrylic clearcoat SOLL C4.

SECTION 8: Exposure control/personal protection

8.1 Control parameters:
Exposure standards for occupational hazards accordance with the Regulation of the Minister of Labour and Social Policy on the maximum permissible concentrations and intensities of harmful factors in the work environment dated 29 November 2002 (Journal of Laws No. 217, item. 1833).

Components, for which exposure standards are in force.

Name / type of component	NDS	NDSCh	NDSP
	mg/m^3		
Ethylbenzene	200	400	-
Dimethylbenzene (xylene) – mixture of isomers	100	-	-
1,6- Hexamethylene diisocyanate	0,04	0,08	-
n-butyl acetate	200	950	-
2-Methoxy-1-methylethyl acetate	260	520	-

n-butyl acetate:
DNEL for workers, prolonged exposure through the skin: 7mg/kg mc/day
DNEL for workers, prolonged exposure through inhalation: 48mg/m^3
DNEL for consumer, prolonged exposure through the skin: 3,4mg/kg mc/day
DNEL for consumer, prolonged exposure through inhalation: 12mg/m^3
DNEL for consumer, prolonged exposure if swallowed: 3,4mg/kg mc/day
PNEC freshwater: 0,18mg/l
PNEC sea water: 0,018mg/l
PNEC periodic release: 0,36mg/l
PNEC sewage treatment plant: 35,6mg/l
PNEC freshwater sediment: 0,981mg/kg
PNEC sea waters sediment: 0,0981mg/l
PNEC soil: 0,0903mg/kg
2-Methoxy-1-methylethyl acetate
DNEL for workers, prolonged exposure through the skin (systemic effects): 153,5mg/kg mc
DNEL for workers, prolonged exposure through inhalation (systemic effects): 275mg/m^3
DNEL for consumer, prolonged exposure through the skin (systemic effects): 54,8mg/kg mc
DNEL for consumer, prolonged exposure if swallowed (systemic effects): 1,67mg/kg mc/day
PNEC freshwater: 0,635mg/l
PNEC freshwater sediment: 3,29mg/kg
PNEC sea waters sediment: 0,329mg/l
PNEC soil: 0,29mg/kg
PNEC sewage treatment plant: 100mg/l

Maximum concentrations of dangerous component (xylene) in biological material:
DSB –1,4 g/dm^3 calculated on average density of urine - 1,024
Determined substance – methyl hippuric acid
Biological material – urine
Notes: sample collected once, at the end of daily exposure on any day.
Maximum concentrations of dangerous component (ethylbenzene) in biological material:
DSB –0,3 g/g creatinine
Determined substance – mandelic acid
Biological material – urine
Notes: sample collected once, at the end of daily exposure on any day.

8.2 Exposure control:
Appropriate technical control measures: use of general ventilation of the room is recommended.

Individual protection measures, such as personal protective equipment:


Eye or face protection:
Wear protective glasses or protective mask (in accordance with EN 166).
Skin protection:
Hand protection:
Use protective gloves resistant to chemicals, made of viton, 0,7 mm thick, penetration time > 480 min or nitrile rubber, 0,4 mm thick, penetration time > 30 min in accordance to EN-PN 374:2005.
The material from which the gloves are made:
Choice of suitable gloves depends not only on the material, but also on the brand and quality that depend on manufacturer. Resistance of the material from which gloves are made can be determined after testing. The exact time of the destruction of the protective gloves must be determined by the manufacturer.
Other:
Wear protective clothing working – wash regularly.
Respiratory system protection:

Avoid breathing vapours. In case of exceeding the NDS value in the workplace use personal respiratory system protection – mask or half mask with filter and universal or A type vapour absorber (class 1,2 or 3) in accordance with EN 141.

Thermal hazards:

Not applicable.

Control of environmental exposure

Do not allow to spread in the environment and leakage to sewage system and watercourses.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	liquid
Colour	colourless
Odour	solvent - ester
Odour threshold	0,9 - 9 mg/m^3 (xylene)
pH	not applicable
Melting point (range)	not applicable
Boiling point (range)	126 - 140 °C
Flash point	32 °C
Ignition temperature	not specified
Evaporation rate	not specified
Flammability (solid, gas)	not applicable
Bottom explosion limit	1 vol% (xylene)
Top explosive limit	8 vol% (xylene)
Vapour pressure (20 °C)	9 hPa (xylene)
Relative vapour density	not specified
Solubility in water	very weak
N-octanol / water division ratio	>3
Autoignition point	>200 °C
Breakdown point	not specified
Viscosity ISO 2431 (4 mm)	not specified
Explosive properties	not applicable
Oxidizing properties	not applicable

9.2 Other information:

No additional test results.

SECTION 10: Stability and reactivity

10.1 Reactivity:
Unknown.
10.2 Chemical stability:
Product remains stable under normal use, storage and transport conditions.
10.3 Possibility of hazardous reactions:
None.
10.4 Conditions to be avoided:
Avoid high temperature, direct sunlight, hot surfaces and open flames. Protect from moisture – contact with the water increases the pressure in a closed container.
10.5 Incompatible materials:
Strong acids, strong alkalis, strong oxidizing agents. Combustible materials.
10.6 Hazardous decomposition products:
As a result of high temperatures toxic gases are generated – carbon oxides, nitrogen oxides.

SECTION 11: Toxicological information

11.1 Information on toxicological effects:
a) acute toxicity: does not show

n-butyl acetate	
LD_{50} (rat, male; orally)	10760 mg/kg
LC_{50} (rat, male, female; inhalation)	23,4mg/l/h (In vivo, aerosol)
LD_{50} (rabbit; skin)	>14000mg/kg
Xylene:	
Acute oral toxicity LD_{50} (rat):	4300 mg/kg
Acute skin toxicity LD_{50}:	no data
Acute inhalation toxicity LC_{50} (rat):	22100 mg/m^3/4h
1,6- Hexamethylene diisocyanate	
LD_{50} (rabbit; orally):	593 mg/kg
LC_{50} (rat; inhalation):	0,124 mg/l, 4 h
2-Methoxy-1-methylethyl acetate:	
LD_{50} (rat; orally)	>5000mg/kg
LC_{50} (rat; inhalation)	no data
LD_{50} (rabbit; skin)	>5000mg/kg
Ethylbenzene:	
Acute oral toxicity LD_{50} (rat):	3500 mg/kg
Acute skin toxicity LD_{50}:	no data
Acute inhalation toxicity LC_{50} (rat):	17800 mg/m^3/4h
TCL_0 (human; inhalation)	442 mg/ m^3 (8 h)
1,6- Hexamethylene diisocyanate homopolymer:	
LC_{50} (rat, male; inhalation):	543 mg/m^3, 4 h
LC_{50} (rat, female):	390 mg/m^3, 4 h

b) irritating effect: does not show
c) caustic effect: does not show
d) allergenic effects: May cause an allergic skin reaction
e) toxicity for repeated exposure: May cause drowsiness or dizziness
f) cancerogenity: does not show
g) mutagenity: does not show
h) harmful effect on reproduction: does not show

Information on likely routes of exposure:
Contact with skin: burning, itching, redness, allergic reactions, dryness, cracking of the skin after prolonged, direct exposure.
Contact with eyes: possible slight irritation
Respiratory system: irritation of nasal mucosa, throat and further parts of respiratory system, may depress central nervous system and adversely affect the internal organs – liver, kidney. Symptoms include headache, dizziness, drowsiness, weakness, in extreme cases loss of consciousness.
Gastrointestinal tract: chemical irritation of oral cavity, throat and further parts of gastrointestinal tract. After absorption may experience symptoms of food poisoning, abdominal pain, dizziness, nausea and vomiting. Ingestion of large amounts may cause liver and kidney damage.

Delayed and immediate and chronic effects from short-and long-term exposure:
No data.
The effects of the interaction:
No data.

SECTION 12: Ecological information

Detailed studies of the environmental effects of the mixture were not carried out. Harmful to aquatic life with long lasting effects. Do not allow to leakage to ground water sewage system and watercourses.

12.1 Toxicity:
n-butyl acetate:

LC_{50} – fish (Pimephales promelas)	18 mg/l, 96h
EC_{50} – invertebrates (Daphnia sp.)	44 mg/l, 48h
NOEC – algae (Desmodesmus subspicatus)	200 mg/l, 72h
ErC_{50} – algae (Desmodesmus subspicatus)	648 mg/l, 72h
IC_{50} – activated sludge (Tetrahymena pyriformis)	356 mg/l, 40h

1,6- Hexamethylene diisocyanate

LC_0 – fish (*Brachydanio rerio*)	82,8 mg/l (96h)
EC_0 – invertebrates (*Daphnia*)	89,1 mg/l (48h)
EC_{50} – algae (*Scenedesmus quadricauda*)	77,4 mg/l (96h)
EC_{50} – bacteria (*effect on activated sludge*)	842 mg/l

Ethylbenzene:

Acute toxicity to fish (*Pimephales promelas*) LC_{50}:	49 mg/dm3/96h
Acute toxicity to aquatic invertebrates (*Daphnia magna*) EC_{50}:	184 mg/dm3/24h

Xylene:

Acute toxicity to fish (*Pimephales promelas*) LC_{50}:	16,1 mg/dm3/96h
Acute toxicity to aquatic invertebrates (*Daphnia magna*) EC_{50}:	3,82 mg/dm3/48h

12.2 Persistence and degradability:
n-butyl acetate: Slowly hydrolyzed in water. Hydrolysis half-time: 78 days at pH: 8 and 2 years at pH: 7 (in 25^{o}C). Substance is easily biodegradable: 80% within 5 days (83% within 28 days).
Xylene: Substance is easily biodegradable in water. 50-70% after 5 days (oxygen, communal sewage)
Half-life degradation in groundwater: 20-116 days,
Half-life degradation in soil: 2-7 days
Half-life degradation in an atmosphere: 8-14 days
2-Methoxy-1-methylethyl acetate: Substance is easily biodegradable; oxidized in the air as a result of photochemical reactions.

12.3 Bioaccumulative potential:
n-butyl acetate: log Ko/w: 2,3 (BCF expected: 15,3) – substance is not expected to bio accumulate.
Xylene: BCF <100
2-Methoxy-1-methylethyl acetate: log Po/w: 0,56

12.4 Mobility in soil:
n-butyl acetate: Ko/c: 1,27 (estimated value)
2-Methoxy-1-methylethyl acetate: Ko/c: 1,7 (estimated value)
Hydrocarbons, C9, aromatics: easily volatile; evaporates quickly.

12.5 Results of PBT and vPvB assessment:
No data.

12.6 Other adverse effects:
No data.

SECTION 13: Disposal considerations

13.1 Waste treatment methods:
Disposable containers and waste must be disposed by authorized firm. Disposal procedure should be agreed with area competent department of environmental protection. Rest of product store in original containers. Dispose in

accordance with applicable regulations. Empty containers must be disposed in accordance with applicable regulations or deliver to suitable garbage dump.

SECTION 14: Transport information

14.1 UN number (ONZ number): 1263

14.2 UN proper shipping name: PAINT OR PAINT RELATED MATERIAL

14.3 Transport hazard class(es): 3

14.4 Packaging group: III

14.5 Environmental hazards: none

14.6 Special precautions for user: always transport in closed containers that are upright, labelled and secured.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 Convention and the IBC Code: no information.

SECTION 15: Regulatory information

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

* Regulation (EC) No 1907/2006 of THE EUROPEAN PARLIAMENT AND THE COUNCIL of 18 December 2006 Concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), with subsequent amendments.
*Commission Regulation (EU) No. 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of THE EUROPEAN PARLIAMENT AND THE COUNCIL Concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH).
* Regulation (EC) No 1272/2008 (CLP) (Article 55, Annex VI, Table 3.2) of THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, with subsequent amendments.
* Council Directive No. 75/442/EEC On waste and Council Directive No. 91/689/EEC On hazardous waste. Commission Decision No 2000/532/EC of 3 May 2000, stating the list of waste, OJ No. L 226 / 3, 6 September 2000, along with changing decisions.

15.2 Chemical safety assessment:
No chemical safety assessment for the substances, and the mixture.

SECTION 16: Other information

R and H phrases:
R10 – Flammable.
R11 – Highly flammable.
R20 – Harmful by inhalation.
R20/21 – Harmful by inhalation and in contact with skin.
R23 – Toxic by inhalation.
R38 – Irritating to skin.
R36/37/38 – Irritating to eyes, respiratory system and skin.
R42/43 – May cause sensitization by inhalation and skin contact.
R43 – May cause sensitisation by skin contact.
R48/20 – Harmful: danger of serious damage to health by prolonged exposure through inhalation.
R65 – Harmful: may cause lung damage if swallowed
R66 – Repeated exposure may cause skin dryness or cracking.
R67 – Vapours may cause drowsiness and dizziness.

H225 – Highly flammable liquid and vapour.
H226 – Flammable liquid and vapour.
H304 – May be fatal if swallowed and enters airways
H312 – Harmful in contact with skin.
H315 – Causes skin irritation.

H317 – May cause an allergic skin reaction.
H319 – Causes serious eye irritation.
H331 – Toxic if inhaled.
H332 – Harmful if inhaled.
H334 – May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 – May cause respiratory irritation.
H336 – May cause drowsiness or dizziness.
H373 – May cause damage to organs through prolonged or repeated exposure

Explanation of the abbreviations, acronyms and symbols used in the Safety Data Sheet:

T – Toxic
Xn – Harmful
Xi – Irritant
F – Highly flammable
Flam. Liq. 3 – Liquid, flammable substances, category 3
Flam. Liq. 2 – Liquid, flammable substances, category 2
Asp. Tox. 1 – Aspiration hazard, category 1
STOT RE 2 – Specific target organ toxicity – repeated exposure, category 2
Acute Tox. 3 – Acute toxicity, category 3
Acute Tox. 4 – Acute toxicity, category 4
Eye Irrit. 2 – Eye irritation, category 2
STOT SE 3 – Toxic effect on target organs – single exposure, category 3
Skin Irrit. 2 – Irritating effect on skin, category 2
Skin Sens. 1 – Skin sensitisation, category 1
Resp. Sens. 1 – Respiratory system sensitisation, category 1

NDS – Maximum permissible concentration of substances in the workplace
NDSP – Maximum permissible ceiling concentration
NDSCh – Maximum permissible instantaneous concentration

Training:
Before starting handling the product, workers must undergo obligatorily occupational health and safety training because of presence of chemicals in the workplace. Perform, document and familiarize employees with the results of risk assessment in the workplace due to the presence of chemical agents.

The information of this Material Safety Data Sheet is based on the present state of knowledge and on current EU and national laws, as the users' working conditions are beyond our knowledge and control. The product is not to be used for other purposes than those specified, without first obtaining written handling instruction. It is always the responsibility of the user to take all necessary steps in order to fulfill the demand laid down in the local rules and legislation. The information in this Material Safety Data Sheet is meant as a description of the safety requirements of the product and it is not to be considered as a guarantee of the product's properties.