

## 1 Identification

- **Product identifier**
  - **Trade name: Mipa 2K-HS-Express-Härter HX 4**
  - **Application of the substance / the mixture** Hardening agent/ Curing agent
  - **Details of the supplier of the safety data sheet**
  - **Manufacturer/Supplier:**  
MIPA SE  
Am Oberen Moos 1  
D-84051 Essenbach  
Tel.: +49(0)8703-922-0  
Fax.: +49(0)8703-922-100  
e-mail: [sdb-registratur@mipa-paints.com](mailto:sdb-registratur@mipa-paints.com)  
[www.mipa-paints.com](http://www.mipa-paints.com)
  - **Emergency telephone number:**  
International: 011 49(0)700 24112112 (MIP)  
US: +1 872 5888271 (MIP)  
US Emergency Telephone Number (for transportation incidents only): 1-800-535-5053 (Infotrac)
- Fleetwood Products Inc.  
13 American Way Suite 15  
USA - NJ 08884 Spotswood  
Tel.: +1 7324169590  
e.mail: [fleet089@hotmail.com](mailto:fleet089@hotmail.com)

## 2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS02 Flame

Flammable Liquids 3

H226 Flammable liquid and vapor.



GHS08 Health hazard

Toxic to Reproduction 2

H361 Suspected of damaging fertility or the unborn child.



GHS07

Acute Toxicity - Inhalation 4

H332 Harmful if inhaled.

Sensitization - Skin 1

H317 May cause an allergic skin reaction.

Specific Target Organ Toxicity - Single Exposure 3 H335 May cause respiratory irritation.

- **Label elements**

- **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

- **Hazard pictograms**



GHS02 GHS07 GHS08

- **Signal word** Warning

- **Hazard-determining components of labeling:**

Hexamethylene diisocyanate, oligomers

5-methylhexan-2-one

3-Isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate, oligomers

(Contd. on page 2)

**Trade name: Mipa 2K-HS-Express-Härter HX 4**

(Contd. of page 1)

Hydrocarbons, C9, aromatics

**Hazard statements**

- H226 Flammable liquid and vapor.
- H332 Harmful if inhaled.
- H317 May cause an allergic skin reaction.
- H361 Suspected of damaging fertility or the unborn child.
- H335 May cause respiratory irritation.

**Precautionary statements**

- P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
- P261 Avoid breathing dust/fume/gas/mist/vapors/spray
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P312 Call a poison center/doctor if you feel unwell.

**Classification system:**

**NFPA ratings (scale 0 - 4)**



Health = 0  
Fire = 3  
Reactivity = 0

**HMIS-ratings (scale 0 - 4)**



HEALTH 1 Health = 1  
FIRE 3 Fire = 3  
REACTIVITY 0 Reactivity = 0

**Other hazards**

**Results of PBT and vPvB assessment**

- PBT:** Not applicable.
- vPvB:** Not applicable.

**3 Composition/information on ingredients**

**Chemical characterization: Mixtures**

**Description:** Mixture of the substances listed below with nonhazardous additions.

**Dangerous components:**

28182-81-2	Hexamethylene diisocyanate, oligomers	50-100%
110-12-3	5-methylhexan-2-one	10-25%
123-86-4	n-Butyl acetate	≤20%
53880-05-0	3-Isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate, oligomers	2.5-<10%
64742-95-6	Hydrocarbons, C9, aromatics	2.5-<5%
108-83-8	2,6-dimethylheptan-4-one	2.5-<10%

**4 First-aid measures**

**Description of first aid measures**

**General information:**

Immediately remove any clothing soiled by the product.  
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

**After inhalation:**

Supply fresh air and to be sure call for a doctor.

(Contd. on page 3)

**Trade name: Mipa 2K-HS-Express-Härter HX 4**

(Contd. of page 2)

- In case of unconsciousness place patient stably in side position for transportation.*
- **After skin contact:** Immediately rinse with water.
- **After eye contact:**  
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:** If symptoms persist consult doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed**  
No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

## 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**  
CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **For safety reasons unsuitable extinguishing agents:** Water with full jet
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
Dispose contaminated material as waste according to section 13.  
Ensure adequate ventilation.
- **Reference to other sections**  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.
- **Protective Action Criteria for Chemicals**

· **PAC-1:**

28182-81-2	Hexamethylene diisocyanate, oligomers	7.8 mg/m <sup>3</sup>
110-12-3	5-methylhexan-2-one	50 ppm
123-86-4	n-Butyl acetate	5 ppm
108-83-8	2,6-dimethylheptan-4-one	75 ppm
822-06-0	hexamethylene-di-isocyanate	0.018 ppm
4098-71-9	Isophorondiisocyanate	0.02 ppm

· **PAC-2:**

28182-81-2	Hexamethylene diisocyanate, oligomers	86 mg/m <sup>3</sup>
110-12-3	5-methylhexan-2-one	69 ppm
123-86-4	n-Butyl acetate	200 ppm
108-83-8	2,6-dimethylheptan-4-one	330 ppm
822-06-0	hexamethylene-di-isocyanate	0.2 ppm
4098-71-9	Isophorondiisocyanate	0.14 ppm

(Contd. on page 4)

**Trade name: Mipa 2K-HS-Express-Härter HX 4**

(Contd. of page 3)

· <b>PAC-3:</b>		
28182-81-2	Hexamethylene diisocyanate, oligomers	510 mg/m <sup>3</sup>
110-12-3	5-methylhexan-2-one	190 ppm
123-86-4	n-Butyl acetate	3000* ppm
108-83-8	2,6-dimethylheptan-4-one	2000* ppm
822-06-0	hexamethylene-di-isocyanate	3 ppm
4098-71-9	Isophorondiisocyanate	0.6 ppm

## 7 Handling and storage

- **Handling:**
- **Precautions for safe handling**  
Ensure good ventilation/exhaustion at the workplace.  
Open and handle receptacle with care.  
Prevent formation of aerosols.
- **Information about protection against explosions and fires:**  
Keep ignition sources away - Do not smoke.  
Protect against electrostatic charges.  
Keep respiratory protective device available.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Store away from foodstuffs.
- **Further information about storage conditions:** Keep receptacle tightly sealed.
- **Storage class:** 3
- **Specific end use(s)** No further relevant information available.

## 8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see section 7.
- **Control parameters**
- **Components with limit values that require monitoring at the workplace:**  
The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit.  
At this time, the other constituents have no known exposure limits.

<b>110-12-3 5-methylhexan-2-one</b>	
PEL	Long-term value: 475 mg/m <sup>3</sup> , 100 ppm
REL	Long-term value: 240 mg/m <sup>3</sup> , 50 ppm
TLV	Short-term value: 50 ppm Long-term value: 20 ppm
<b>123-86-4 n-Butyl acetate</b>	
PEL	Long-term value: 710 mg/m <sup>3</sup> , 150 ppm
REL	Short-term value: 950 mg/m <sup>3</sup> , 200 ppm Long-term value: 710 mg/m <sup>3</sup> , 150 ppm
TLV	Short-term value: 150 ppm Long-term value: 50 ppm
<b>108-83-8 2,6-dimethylheptan-4-one</b>	
PEL	Long-term value: 290 mg/m <sup>3</sup> , 50 ppm
REL	Long-term value: 150 mg/m <sup>3</sup> , 25 ppm

(Contd. on page 5)

**Trade name: Mipa 2K-HS-Express-Härter HX 4**

(Contd. of page 4)

TLV | Long-term value: 25 ppm

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**

· **Personal protective equipment:**

· **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

· **Breathing equipment:**



In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· **Protection of hands:**

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Breakthrough 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:**



Tightly sealed goggles

## 9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form:

Fluid

Color:

According to product specification

· **Odor:**

Characteristic

· **Odor threshold:**

Not determined.

· **pH-value:**

Not determined.

· **Change in condition**

Melting point/Melting range:

Undetermined.

Boiling point/Boiling range:

124-128 °C (255.2-262.4 °F)

(Contd. on page 6)

**Trade name: Mipa 2K-HS-Express-Härter HX 4**

(Contd. of page 5)

· <b>Flash point:</b>	27 °C (80.6 °F) (DIN EN ISO 1523:2002)
· <b>Flammability (solid, gaseous):</b>	Flammable.
· <b>Auto igniting:</b>	370 °C (698 °F) (DIN 51794)
· <b>Decomposition temperature:</b>	Not determined.
· <b>Ignition temperature:</b>	Product is not selfigniting.
· <b>Danger of explosion:</b>	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· <b>Explosion limits:</b>	
<b>Lower:</b>	1.2 Vol %
<b>Upper:</b>	7.5 Vol %
· <b>Vapor pressure at 20 °C (68 °F):</b>	10.7 hPa (8 mm Hg)
· <b>Vapor pressure at 50 °C (122 °F):</b>	55 hPa (41.3 mm Hg)
· <b>Density at 20 °C (68 °F):</b>	1.016 g/cm <sup>3</sup> (8.479 lbs/gal) (DIN EN ISO 2811-1)
· <b>Relative density</b>	Not determined.
· <b>Vapor density</b>	Not determined.
· <b>Evaporation rate</b>	Not determined.
· <b>Solubility in / Miscibility with Water:</b>	Not miscible or difficult to mix.
· <b>Partition coefficient (n-octanol/water):</b>	Not determined.
· <b>Viscosity:</b>	
<b>Dynamic:</b>	Not determined.
<b>Kinematic at 20 °C (68 °F):</b>	17 s (DIN 53211/4)
· <b>Solvent content:</b>	
<b>VOC content:</b>	38.28 % 389 g/l / 3.2 lb/gal
<b>Solids content (weight-%):</b>	61.7 %
· <b>Other information</b>	No further relevant information available.

## 10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:**  
No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** Carbon monoxide

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** No irritating effect.

(Contd. on page 7)

**Trade name: Mipa 2K-HS-Express-Härter HX 4**

(Contd. of page 6)

- **Sensitization:** Sensitization possible through skin contact.
- **Additional toxicological information:**  
The product shows the following dangers according to internally approved calculation methods for preparations:  
Harmful  
Irritant

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

None of the ingredients is listed.

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

## 12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**  
Water hazard class 1 (Self-assessment): slightly hazardous for water  
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

## 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**  
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

## 14 Transport information

- **UN-Number**
- **DOT, ADR, IMDG, IATA** UN1263
- **UN proper shipping name**
- **DOT** Paint related material
- **ADR** UN1263 PAINT RELATED MATERIAL
- **IMDG, IATA** PAINT RELATED MATERIAL

(Contd. on page 8)

**Trade name: Mipa 2K-HS-Express-Härter HX 4**

(Contd. of page 7)

 · **Transport hazard class(es)**

 · **DOT**

 · **Class** 3 Flammable liquids  
 · **Label** 3

 · **ADR**

 · **Class** 3 (F1) Flammable liquids  
 · **Label** 3

 · **IMDG, IATA**

 · **Class** 3 Flammable liquids  
 · **Label** 3

 · **Packing group**

 · **DOT, ADR, IMDG, IATA** III

 · **Environmental hazards:** Not applicable.

 · **Special precautions for user** Warning: Flammable liquids

 · **Hazard identification number (Kemler code):** 30

 · **EMS Number:** F-E, S-E

 · **Stowage Category** A

 · **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.

 · **Transport/Additional information:**

 · **ADR**

 · **Limited quantities (LQ)** 5L

 · **IMDG**

 · **Limited quantities (LQ)** 5L

 · **UN "Model Regulation":** UN 1263 PAINT RELATED MATERIAL, 3, III

## 15 Regulatory information

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

 · **Sara**

 · **Section 355 (extremely hazardous substances):**

4098-71-9 Isophorondiisocyanate

(Contd. on page 9)



**Trade name: Mipa 2K-HS-Express-Härter HX 4**

(Contd. of page 8)

· **Section 313 (Specific toxic chemical listings):**

822-06-0 hexamethylene-di-isocyanate

4098-71-9 Isophorondiisocyanate

· **Hazardous Air Pollutants**

822-06-0 hexamethylene-di-isocyanate

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

· **Carcinogeny categories**

· **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

· **TLV (Threshold Limit Value)**

None of the ingredients is listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



GHS02 GHS07 GHS08

· **Signal word** Warning

· **Hazard-determining components of labeling:**

Hexamethylene diisocyanate, oligomers

5-methylhexan-2-one

3-Isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate, oligomers

Hydrocarbons, C9, aromatics

· **Hazard statements**

H226 Flammable liquid and vapor.

H332 Harmful if inhaled.

H317 May cause an allergic skin reaction.

H361 Suspected of damaging fertility or the unborn child.

H335 May cause respiratory irritation.

· **Precautionary statements**

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P261 Avoid breathing dust/fume/gas/mist/vapors/spray

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P312 Call a poison center/doctor if you feel unwell.

(Contd. on page 10)

**Trade name: Mipa 2K-HS-Express-Härter HX 4**

(Contd. of page 9)

- **National regulations:**
- **Additional classification according to Decree on Hazardous Materials:**

Class	Share in %
NK	25-50

- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## 16 Other information

*This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.*

- **Contact:**
- **Date of preparation / last revision 06/19/2023**
- **Abbreviations and acronyms:**  
 ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)  
 IMDG: International Maritime Code for Dangerous Goods  
 DOT: US Department of Transportation  
 IATA: International Air Transport Association  
 EINECS: European Inventory of Existing Commercial Chemical Substances  
 ELINCS: European List of Notified Chemical Substances  
 CAS: Chemical Abstracts Service (division of the American Chemical Society)  
 NFPA: National Fire Protection Association (USA)  
 HMIS: Hazardous Materials Identification System (USA)  
 VOC: Volatile Organic Compounds (USA, EU)  
 PBT: Persistent, Bioaccumulative and Toxic  
 vPvB: very Persistent and very Bioaccumulative  
 NIOSH: National Institute for Occupational Safety  
 OSHA: Occupational Safety & Health  
 TLV: Threshold Limit Value  
 PEL: Permissible Exposure Limit  
 REL: Recommended Exposure Limit  
 Flammable Liquids 3: Flammable liquids – Category 3  
 Acute Toxicity - Inhalation 4: Acute toxicity – Category 4  
 Sensitization - Skin 1: Skin sensitisation – Category 1  
 Toxic to Reproduction 2: Reproductive toxicity – Category 2  
 Specific Target Organ Toxicity - Single Exposure 3: Specific target organ toxicity (single exposure) – Category 3
- **\* Data compared to the previous version altered.**