



SAFETY DATA SHEET

(REACH regulation (EC) n° 1907/2006 - n° 453/2010)

SECTION 1 : IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product name : FRS HARDENER
Product code : 21040000 D.

1.2. Relevant identified uses of the substance or mixture and uses advised against

Solvent based 2K polyurethane paint

1.3. Details of the supplier of the safety data sheet

Registered company name : MAPAERO- Aerospace Coatings.
Address : 10 Avenue de la Rijole.09100.Pamiers.France.
Telephone : 33 (0)5 34 01 34 01. Fax : 33 (0)5 61 60 23 30.
sales.mapaero@mapaero.com
www.mapaero.com

1.4. Emergency telephone number : 33 (0)1 45 42 59 59 .

Association/Organisation : ORFILA.

SECTION 2 : HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

In compliance with EC regulation No. 1272/2008 and its amendments.

Flammable liquid, Category 3 (Flam. Liq. 3, H226).

Skin irritation, Category 2 (Skin Irrit. 2, H315).

Skin sensitisation, Category 1 (Skin Sens. 1, H317).

This mixture does not present an environmental hazard. No known or foreseeable environmental damage under standard conditions of use.

In compliance with directives 67/548/EEC, 1999/45/EC and their amendments.

Flammable (R 10).

Acute inhalation toxicity: harmful (Xn, R 20).

Skin sensitisation (Xi, R 43).

This mixture does not present an environmental hazard. No known or foreseeable environmental damage under standard conditions of use.

2.2. Label elements

Mixture for spray application.

In compliance with EC regulation No. 1272/2008 and its amendments.

Hazard pictograms :



GHS07



GHS02

Signal Word :

WARNING

Product identifiers :

EC 500-060-2
615-011-00-1

1,3,5-TRI(6-ISOCANATOHEXY-2-PROPYL),XYLENE
HEXAMETHYLENE-DI-ISOCYANATE

Additional labeling :

EUH204

Contains isocyanates. May produce an allergic reaction.

Hazard statements :

H226

Flammable liquid and vapour.

H315

Causes skin irritation.

H317

May cause an allergic skin reaction.

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Precautionary statements - Prevention :

- P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary statements - Response :

- P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P321 Specific treatment (see ... on this label).
P333 + P313 If skin irritation or rash occurs: Get medical advice/attention.

2.3. Other hazards

The mixture does not contain substances classified as 'Substances of Very High Concern' (SVHC) >= 0.1% published by the European Chemicals Agency (ECHA) under article 57 of REACH: <http://echa.europa.eu/fr/candidate-list-table>

The mixture satisfies neither the PBT nor the vPvB criteria for mixtures in accordance with annexe XIII of the REACH regulations EC 1907/2006.

SECTION 3 : COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

Composition :

Identification	(EC) 1272/2008	67/548/EEC	Note	%
INDEX: M133 CAS: 28182-81-2 EC: 500-060-2 1,3,5-TRI(6-ISOCANATOHEXY-2-PROPYL),XYL ENE	GHS07 Wng Skin Sens. 1, H317	Xi Xi;R43		50 <= x % < 100
INDEX: 607-195-00-7 CAS: 108-65-6 EC: 203-603-9 REACH: 01-2119475791-29 2-METHOXY-1-METHYLETHYL ACETATE	GHS02 Wng Flam. Liq. 3, H226	R10	[1]	10 <= x % < 25
INDEX: 601-022-00-9 CAS: 1330-20-7 EC: 215-535-7 XYLENE	GHS02, GHS07 Wng Flam. Liq. 3, H226 Acute Tox. 4, H332 Acute Tox. 4, H312 Skin Irrit. 2, H315	Xn Xn;R20/21 Xi;R38 R10	C [1]	10 <= x % < 25
INDEX: 601-023-00-4 CAS: 100-41-4 EC: 202-849-4 ETHYLBENZENE	GHS02, GHS07, GHS08 Dgr Flam. Liq. 2, H225 Acute Tox. 4, H332 STOT RE 2, H373 Asp. Tox. 1, H304	Xn,F Xn;R48/20-R65-R20 F;R11	[1]	0 <= x % < 2.5
INDEX: 615-011-00-1 CAS: 822-06-0 EC: 212-485-8 REACH: 01-2119457571-37 HEXAMETHYLENE-DI-ISOCYANATE	GHS06, GHS08 Dgr Acute Tox. 3, H331 Eye Irrit. 2, H319 STOT SE 3, H335 Skin Irrit. 2, H315 Resp. Sens. 1, H334 Skin Sens. 1, H317	T T;R23 Xn;R42/43 Xi;R36/37/38	[1]	0 <= x % < 2.5

Information on ingredients :

[1] Substance for which maximum workplace exposure limits are available.

SECTION 4 : FIRST AID MEASURES

As a general rule, in case of doubt or if symptoms persist, always call a doctor.

NEVER induce swallowing by an unconscious person.

4.1. Description of first aid measures

In the event of splashes or contact with eyes :

Wash thoroughly with soft, clean water for 15 minutes holding the eyelids open.

In the event of splashes or contact with skin :

Remove contaminated clothing and wash the skin thoroughly with soap and water or a recognised cleaner.

Watch out for any remaining product between skin and clothing, watches, shoes, etc.

In the event of an allergic reaction, seek medical attention.

If the contaminated area is widespread and/or there is damage to the skin, a doctor must be consulted or the patient transferred to hospital.

In the event of swallowing :

Do not give the patient anything orally.

In the event of swallowing, if the quantity is small (no more than one mouthful), rinse the mouth with water and consult a doctor.

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Keep the person exposed at rest. Do not force vomiting.

Seek medical attention immediately, showing the label.

If swallowed accidentally, call a doctor to ascertain whether observation and hospital care will be necessary. Show the label.

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

No data available.

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

No data available.

SECTION 5 : FIREFIGHTING MEASURES

Flammable.

Chemical powders, carbon dioxide and other extinguishing gas are suitable for small fires.

5.1. Extinguishing media

In the event of fire, use specifically suitable extinguishing agents. Never use water.

Keep packages near the fire cool, to prevent pressurised containers from bursting.

Suitable methods of extinction

In the event of a fire, use :

- water with AFFF (Aqueous Film Forming Foam) additive
- foam

Prevent the effluent of fire-fighting measures from entering drains or waterways.

Unsuitable methods of extinction

In the event of a fire, do not use :

- water
- water jet
- sprayed water or water mist

5.2. Special hazards arising from the substance or mixture

A fire will often produce a thick black smoke. Exposure to decomposition products may be hazardous to health.

Do not breathe in smoke.

In the event of a fire, the following may be formed :

- carbon monoxide (CO)
- carbon dioxide (CO₂)

5.3. Advice for firefighters

Fire-fighting personnel are to be equipped with autonomous insulating breathing apparatus.

SECTION 6 : ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Consult the safety measures listed under headings 7 and 8.

For non first aid worker

Because of the organic solvents contained in the mixture, eliminate sources of ignition and ventilate the area.

Avoid any contact with the skin and eyes.

For first aid worker

First aid workers will be equipped with suitable personal protective equipment (See section 8).

6.2. Environmental precautions

Contain and control the leaks or spills with non-combustible absorbent materials such as sand, earth, vermiculite, diatomaceous earth in drums for waste disposal.

Prevent any material from entering drains or waterways.

6.3. Methods and material for containment and cleaning up

Clean preferably with a detergent, do not use solvents.

Contaminated areas must be cleaned very quickly.

A possible decontaminant for flammable products may be : (expressed by volume) water (45 parts), ethanol or isopropanol (50 parts), concentrated ammonia (d-0.880) (5 parts). For non-flammable products: sodium carbonate (5 parts), water (95 parts).

This residue must be stored for disposal in compliance with current regulations (see section 13).

6.4. Reference to other sections

No data available.

SECTION 7 : HANDLING AND STORAGE

Requirements relating to storage premises apply to all facilities where the mixture is handled.
Individuals with a history of skin sensitisation should not, under any circumstance, handle this mixture.

7.1. Precautions for safe handling

Always wash hands after handling.
Remove and wash contaminated clothing before re-using.
Ensure that there is adequate ventilation, especially in confined areas.

Fire prevention :

Handle in well-ventilated areas.
Vapours are heavier than air. They can spread along the ground and form mixtures that are explosive with air.
Prevent the formation of flammable or explosive concentrations in air and avoid vapor concentrations higher than the occupational exposure limits.
Prevent the accumulation of electrostatic charges with connections to earth.
The mixture can become electrostatically charged : always earth during decanting operations. Wear antistatic shoes and clothing and floors should be electrically conductive.
Use the mixture in premises free of naked flames or other sources of ignition and ensure that electrical equipment is suitably protected.
Keep packages tightly closed and away from sources of heat, sparks and naked flames.
Do not use tools which may produce sparks. Do not smoke.
Prevent access by unauthorised personnel.

Recommended equipment and procedures :

For personal protection, see section 8.
Observe precautions stated on label and also industrial safety regulations.
Never pour water into this mixture.
Where the personnel must carry out work in a booth, whether for spraying or otherwise, the ventilation may be inadequate to control particles and solvent vapors in every case.
It is therefore recommended that personnel wear masks with a compressed air supply during spraying operations until the concentration of particles and solvent vapors has fallen below the exposure limits.
Packages which have been opened must be reclosed carefully and stored in an upright position.

Prohibited equipment and procedures :

No smoking, eating or drinking in areas where the mixture is used.

7.2. Conditions for safe storage, including any incompatibilities

No data available.

Storage

Keep the container tightly closed in a dry, well-ventilated place.
Keep away from all sources of ignition - do not smoke.
Keep well away from all sources of ignition, heat and direct sunlight.
Avoid accumulation of electrostatic charges.
The floor must be impermeable and form a collecting basin so that, in the event of an accidental spillage, the liquid cannot spread beyond this area.

Packaging

Always keep in packaging made of an identical material to the original.

7.3. Specific end use(s)

No data available.

SECTION 8 : EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Occupational exposure limits :

- European Union (2009/161/EU, 2006/15/EC, 2000/39/EC, 98/24/EC)

CAS	VME-mg/m3 :	VME-ppm :	VLE-mg/m3 :	VLE-ppm :	Notes :
108-65-6	275	50	550	100	Peau
1330-20-7	221	50	442	100	Peau
100-41-4	442	100	884	200	Peau

- Germany - AGW (BAuA - TRGS 900, 21/06/2010) :

CAS	VME :	VME :	Excess	Notes
108-65-6	50 ml/m3	270 mg/m3	1(I)	DFG, EU, Y
1330-20-7	100 ml/m3	440 mg/m3	2(II)	DFG, H
100-41-4	100 ml/m3	440 mg/m3	2(I)	EU, H
822-06-0	0,005 ml/m3	0,035 mg/m3	1;=2=(I)	DFG, 12

- France (INRS - ED984 :2008) :

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CAS	VME-ppm :	VME-mg/m3 :	VLE-ppm :	VLE-mg/m3 :	Notes :	TMP No :
108-65-6	50	275	100	550	-	-
1330-20-7	50	221	100	442	*	4 Bis, 84, *
100-41-4	20	88.4	100	442	*	84
822-06-0	0.01	0.075	0.02	0.15	AR	62
- UK / WEL (Workplace exposure limits, EH40/2005, 2007) :						
CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :	
108-65-6	50 ppm	100 ppm	-	-	-	
1330-20-7	50 ppm	100 ppm	-	-	-	
100-41-4	100 ppm	125 ppm	-	-	-	
822-06-0	0.02 mg/m3	0.07 mg/m3	-	-	-	

8.2. Exposure controls

Personal protection measures, such as personal protective equipment

Pictogram(s) indicating the obligation of wearing personal protective equipment (PPE) :



Use personal protective equipment that is clean and has been properly maintained.

Store personal protective equipment in a clean place, away from the work area.

Never eat, drink or smoke during use. Remove and wash contaminated clothing before re-using. Ensure that there is adequate ventilation, especially in confined areas.

- Eye / face protection

Avoid contact with eyes.

Use eye protectors designed to protect against liquid splashes

Before handling, wear safety goggles in accordance with standard EN166.

- Hand protection

Use suitable protective gloves that are resistant to chemical agents in accordance with standard EN374.

Gloves must be selected according to the application and duration of use at the workstation.

Protective gloves need to be selected according to their suitability for the workstation in question : other chemical products that may be handled, necessary physical protections (cutting, pricking, heat protection), level of dexterity required.

Type of gloves recommended :

- PVA (Polyvinyl alcohol)
- Nitrile rubber (butadiene-acrylonitrile copolymer rubber (NBR))

Recommended properties :

- Impervious gloves in accordance with standard EN374

- Body protection

Avoid skin contact.

Wear suitable protective clothing.

Suitable type of protective clothing :

Wear antistatic clothing made from heat resistant natural or synthetic fibres in accordance with standard EN1149.

Wear protective clothing against solid chemicals and particles suspended in the air (type 5) in accordance with standard EN13982-1 to prevent skin contact.

In the event of a risk of splashing, wear protective clothing against chemical risks (type 6) in accordance with EN13034 to prevent skin contact.

Suitable type of protective boots :

ISO 2345

Work clothing worn by personnel shall be laundered regularly.

After contact with the product, all parts of the body that have been soiled must be washed.

- Respiratory protection

Type of mask with combined filters :

Wear a half mask in accordance with standard EN140.

Anti-gas and vapour filter(s) (Combined filters) in accordance with standard EN14387 :

- A2 (Brown)

Particle filter according to standard EN143 :

- P2 (White)

SECTION 9 : PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

General information :

Physical state :

Fluid liquid.

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Important health, safety and environmental information

pH :	Not relevant.
Boiling point/boiling range :	144 °C.
Flash Point Interval :	23°C <= PE <= 55°C
Vapour pressure (50°C) :	Below 110 kPa (1.10 bar).
Density :	> 1
Water solubility :	Insoluble.
Viscosity:	v < 7 mm2/s (40°C)
Melting point/melting range :	-25 °C.
Self-ignition temperature :	500 °C.
Decomposition point/decomposition range :	Not relevant.

9.2. Other information

VOC (g/l) :	270
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SECTION 10 : STABILITY AND REACTIVITY

10.1. Reactivity

Keep away from oxidising agents and strongly acidic or basic materials to avoid exothermic reactions.

10.2. Chemical stability

This mixture is stable under the recommended handling and storage conditions in section 7.

10.3. Possibility of hazardous reactions

When exposed to high temperatures, the mixture can release hazardous decomposition products, such as carbon monoxide and dioxide, fumes and nitrogen oxide.

The mixture can also release hydrogen cyanide, amines and alcohols.

10.4. Conditions to avoid

Any apparatus likely to produce a flame or to have a metallic surface at high temperature (burners, electric arcs, furnaces etc.) must not be allowed on the premises.

Avoid :

- accumulation of electrostatic charges.
- heating
- heat
- flames and hot surfaces
- humidity

10.5. Incompatible materials

Keep away from :

- water
- acids
- bases
- oxidising agents

10.6. Hazardous decomposition products

The thermal decomposition may release/form :

- carbon monoxide (CO)
- carbon dioxide (CO2)
- nitrogen oxide (NO)
- nitrogen dioxide (NO2)

SECTION 11 : TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Exposure to vapours from solvents in the mixture in excess of the stated occupational exposure limit may result in adverse health effects such as mucous membrane and respiratory system irritation and adverse effects on kidney, liver and central nervous system.

Symptoms produced will include headaches, numbness, dizziness, fatigue, muscular asthenia and, in extreme cases, loss of consciousness.

May cause irreversible damage to the skin; namely inflammation of the skin or the formation of erythema and eschar or oedema following exposure up to four hours.

Repeated or prolonged contact with the mixture may cause removal of natural oil from the skin resulting in non-allergic contact dermatitis and absorption through the skin.

Splashes in the eyes may cause irritation and reversible damage

May cause an allergic reaction by skin contact.

Based on isocyanate properties and considering the toxicological data of similar mixtures, this preparation may cause irritations and/or sensitisations of the respiratory system.

It may therefore bring about asthma, respiratory difficulties and angina pectoris.

Those susceptible may display asthmatic symptoms when exposed to atmospheres with an isocyanate concentration well below those of the VLE : exposure limits.

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Repeated exposure may cause permanent respiratory problems.

11.1.1. Substances

No toxicological data available for the substances.

11.1.2. Mixture

Respiratory or skin sensitisation :

Contains isocyanates. May cause an allergic reaction.

SECTION 12 : ECOLOGICAL INFORMATION

12.1. Toxicity

12.1.2. Mixtures

No aquatic toxicity data available for the mixture.

12.2. Persistence and degradability

No data available.

12.3. Bioaccumulative potential

No data available.

12.4. Mobility in soil

No data available.

12.5. Results of PBT and vPvB assessment

No data available.

12.6. Other adverse effects

No data available.

German regulations concerning the classification of hazards for water (WGK) :

WGK 2 (VwVwS vom 27/07/2005, KBws) : Hazardous for water.

SECTION 13 : DISPOSAL CONSIDERATIONS

Proper waste management of the mixture and/or its container must be determined in accordance with Directive 2008/98/EC.

13.1. Waste treatment methods

Do not pour into drains or waterways.

Waste :

Waste management is carried out without endangering human health, without harming the environment and, in particular without risk to water, air, soil, plants or animals.

Recycle or dispose of waste in compliance with current legislation, preferably via a certified collector or company.

Do not contaminate the ground or water with waste, do not dispose of waste into the environment.

Soiled packaging :

Empty container completely. Keep label(s) on container.

Give to a certified disposal contractor.

Codes of wastes (Decision 2001/573/EC, Directive 2006/12/EEC, Directive 94/31/EEC on hazardous waste) :

15 01 10 * packaging containing residues of or contaminated by dangerous substances

08 01 11 * waste paint and varnish containing organic solvents or other dangerous substances

SECTION 14 : TRANSPORT INFORMATION

Transport product in compliance with provisions of the ADR for road, RID for rail, IMDG for sea and ICAO/IATA for air transport (ADR 2013 - IMDG 2012 - ICAO/IATA 2014).

14.1. UN number

1263

14.2. UN proper shipping name

UN1263=PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning and reducing compound)

14.3. Transport hazard class(es)

- Classification :



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14.4. Packing group

III

14.5. Environmental hazards

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14.6. Special precautions for user

ADR/RID	Class	Code	Pack gr.	Label	Ident.	LQ	Provis.	EQ	Cat.	Tunnel
	3	F1	III	3	30	5 L	163 650 640E	E1	3	D/E

IMDG	Class	2°Label	Pack gr.	LQ	EMS	Provis.	EQ
	3	-	III	5 L	F-E,S-E	163 223 955	E1

IATA	Class	2°Label	Pack gr.	Passager	Passager	Cargo	Cargo	note	EQ
	3	-	III	355	60 L	366	220 L	A3 A72	E1
	3	-	III	Y344	10 L	-	-	A3 A72	E1

For limited quantities, see part 2.7 of the OACI/IATA and chapter 3.4 of the ADR and IMDG.

For excepted quantities, see part 2.6 of the OACI/IATA and chapter 3.5 of the ADR and IMDG.

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

No data available.

SECTION 15 : REGULATORY INFORMATION

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

- Classification and labelling information included in section 2:

The following regulations have been used:

- Directive 67/548/EEC and its adaptations
- Directive 1999/45/EC and its adaptations
- EU Regulation No. 1272/2008 amended by EU Regulation No. 487/2013.
- EU Regulation No. 1272/2008 amended by EU Regulation No. 758/2013.
- EU Regulation No. 1272/2008 amended by EU Regulation No. 944/2013.
- EU Regulation No. 1272/2008 amended by EU Regulation No. 605/2014.

- Container information:

No data available.

- Particular provisions :

No data available.

- German regulations concerning the classification of hazards for water (WGK) :

WGK 2 (VwVwS vom 27/07/2005, KBws) : Hazardous for water.

- Standardised American system for the identification of hazards presented by the product in view of emergency procedures (NFPA 704) :

NFPA 704, Labelling: Health=2 Inflammability=2 Instability/Reactivity=1 Specific Risk=none



15.2. Chemical safety assessment

No data available.

SECTION 16 : OTHER INFORMATION

Since the user's working conditions are not known by us, the information supplied on this safety data sheet is based on our current level of knowledge and on national and community regulations.

The mixture must not be used for other uses than those specified in section 1 without having first obtained written handling instructions.

It is at all times the responsibility of the user to take all necessary measures to comply with legal requirements and local regulations.

The information in this safety data sheet must be regarded as a description of the safety requirements relating to the mixture and not as a guarantee of the properties thereof.

Title for H, EUH and R indications mentioned in section 3 :

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.

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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.
H373	May cause damage to organs through prolonged or repeated exposure .
R 10	Flammable.
R 11	Highly flammable.
R 20	Harmful by inhalation.
R 20/21	Harmful by inhalation and in contact with skin.
R 23	Toxic by inhalation.
R 36/37/38	Irritating to eyes, respiratory system and skin.
R 38	Irritating to skin.
R 42/43	May cause sensitization by inhalation and skin contact.
R 43	May cause sensitisation by skin contact.
R 48/20	Harmful: danger of serious damage to health by prolonged exposure through inhalation.
R 65	Harmful: may cause lung damage if swallowed.

Abbreviations :

ADR : European agreement concerning the international carriage of dangerous goods by Road.

IMDG : International Maritime Dangerous Goods.

IATA : International Air Transport Association.

ICAO : International Civil Aviation Organisation

RID : Regulations concerning the International carriage of Dangerous goods by rail.

WGK : Wassergefährdungsklasse (Water Hazard Class).

GHS02 : Flame

GHS07 : Exclamation mark