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**MATERIAL SAFETY DATA SHEET 2001/58/EC**  
**MX503 - MX603**Revision date: 06.05.04  
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SDS-619/EN**\*1. IDENTIFICATION OF THE PRODUCT AND COMPANY**1.1 Identification of the preparation: MX503 Code: 51229  
MX603 Code: 51233

1.2 Use of the preparation: Hardener for 2K primers.

1.3 Company:  
ROBERLO, S.A.

Carretera N-II, Km. 706,5 - E-17457 - Riudellots de la Selva (Girona) - SPAIN

Phone: +34 972 478060 - Fax: +34 972 477394 - info@roberlo.com – www.roberlo.com

1.4 Emergency phone number: +34 91 5620420 (National Institute of Toxicology)

**\*2. COMPOSITION/INFORMATION ON INGREDIENTS**

Substances taking part in a percentage higher than the exemption limit and presenting a health or environment hazard, and/or with a recognised exposure limit value:

25-50 %	Aliphatic polyisocyanate	R43		Xi	NLP No. 500-060-2 CAS: 28182-81-2
10-25 %	n-butyl acetate	R10 R66 R67			EC No. 204-658-1 CAS: 123-86-4 SAX: BPU750 No. 607-025-00-1
10-25 %	1-methoxypropyl acetate	R10 R36		Xi	EC No. 203-603-9 CAS: 108-65-6 No. 607-195-00-7
10-25 %	Xylene (mixture of isomers)	R10 R38 R20/21		Xn	EC No. 215-535-7 CAS: 1330-20-7 SAX: XGS000 No. 601-022-00-9
2,5-10 %	Ethylbenzene	R11 R20		F Xn	EC No. 202-849-4 CAS: 100-41-4 SAX: EGP500 No. 601-023-00-4
< 2,5 %	Naphtha solvent (oil), light aromatic	R10 R65 R66 R67 R51/53		Xn N	EC No. 265-199-0 CAS: 64742-95-6 No. 649-356-00-4 (Note P)
< 1 %	1,2,4-trimethylbenzene	R10 R20 R36/37/38 R51/53		Xn N	EC No. 202-436-9 CAS: 95-63-6 SAX: TLL750 No. 601-043-00-3

For more information on dangerous ingredients, see sections 8, 11, 12 and 16.

**\*3. IDENTIFICATION OF HAZARDS**

Flammable. Harmful by inhalation. Harmful in contact with skin. May cause sensitisation by skin contact. Harmful to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

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#### **\*4. FIRST AID MEASURES**

When in doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person.

4.1 By inhalation: Remove the patient out of the contaminated area into the fresh air. If breathing is irregular or stops, administer artificial respiration. If the person is unconscious, place in appropriate recovery position. Keep the patient warm and at rest until medical attention arrives.

4.2 By contact with the skin: Remove contaminated clothing. Wash thoroughly the affected area with plenty of cold or lukewarm water and neutral soap, or use a suitable skin cleanser. Do not use solvents or thinners. In the case of skin reddening or rashes, contact a doctor immediately.

4.3 By contact with eyes: Rinse eyes copiously by irrigation with plenty of clean, fresh water for at least 15 minutes, until the irritation is reduced. Call a physician immediately.

4.4 By ingestion: In case of accidental swallowing, seek immediate medical attention. Do not induce vomiting, due to the risk of aspiration. Keep the patient at rest.

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#### **\*5. FIRE-FIGHTING MEASURES**

5.1 Means of Extinction: Extinguishing powder or CO<sub>2</sub>. In the case of more important fires, also alcohol resistant foam and water spray/mist. Do not use for extinguishing: direct water jet.

5.2 Specific risks: Fire can produce a dense black smoke. As consequence of combustion or thermal decomposition, hazardous decomposition products may be produced, such as: carbon monoxide, carbon dioxide, nitrogen oxides, isocyanate vapours, traces of hydrocyanic acid. Exposure to combustion or decomposition products may be a hazard to health.

5.3 Fire-proof protective equipment: Depending on magnitude of fire, heat-proof protective clothing may be required, appropriate independent breathing apparatus, gloves, protective glasses or face masks and boots.

5.4 Other recommendations: Cool with water the tanks, cisterns or containers close to sources of heat or fire. Bear in mind the direction of the wind. Do not allow fire-fighting residue to enter drains, sewers or water courses.

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#### **6. ACCIDENTAL SPILLAGE MEASURES**

6.1 Personal precautions: Eliminate possible sources of ignition and when appropriate, ventilate the area. Do not smoke. Avoid direct contact with this product. Avoid breathing vapours. For exposure controls and personal protection measures, see section 8.

6.2 Environmental precautions: Avoid contamination of drains, surface or subterranean water and soil. In the case of large scale spills or when the product contaminates lakes, rivers or sews, inform the appropriate authorities in accordance with local regulations.

6.3 Cleaning-up methods: Contain and mop up spills with non-combustible absorbent materials (earth, sand, vermiculite, diatomaceous earth, etc..). The contaminated area should be cleaned up immediately with a suitable decontaminant. One possible (flammable) decontaminant comprises: water/ethanol or isopropanol/concentrated ammonia solution (d=0,880) = 45/50/5 parts by volume. Another possible (non-flammable) decontaminant is made up of water/sodium carbonate = 95/5 parts by weight. Add the same decontaminant to any residues and allow standing for several days in an unsealed container until no further reaction occurs. Keep the remains in a closed container. For subsequent waste disposal, follow the recommendations in section 13.

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## 7. HANDLING AND STORAGE

7.1 Handling precautions: Comply with the health and safety at work laws.

- General recommendations: Avoid any type of leakage or escape. Keep the container tightly closed.

Recommendations for the prevention of fire and explosion risks: Vapours are heavier than air and may spread along floors to a considerable distance. Vapours can form explosive mixtures with air and are able to reach distant ignition sources and flame up or explode. Due to its flammability, this material should only be used in areas from which all naked lights and other sources of ignition have been excluded and away from other heat or electrical sources. Do not smoke. Electrical equipment should be protected to the appropriate standard. No tools with a potential for sparks should be used. Use explosion protected equipment. Switch mobile phones off.

Recommendations for the prevention of toxicological risks: People with a history of asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which isocyanate containing products are used. Do not eat, drink or smoke in application and drying areas. After handling, wash hands with soap and water. For exposure controls and personal protection measures, see section 8.

7.2 Storage conditions: Prevent unauthorised access. Keep out of reach of children. This product should be stored isolated from heat and electrical sources. Do not smoke in storage area. Keep away from food, drink and animal foodstuffs. In order to avoid leaks, the containers, after use, should be closed carefully and placed in a vertical position. Class of store: Class B1. According to ITC MIE APQ-1, RD.379/2001. Maximum storage period: 12 months. Temperature interval: min: 5°C, max: 35°C.

7.3 Incompatible materials: Keep away from water, oxidising agents, acids, alkalis, amines, alcohols, peroxides.

7.4 Conditions to avoid: Heat: Keep away from sources of heat. Light: Avoid direct contact with sunlight. Humidity: Avoid extreme humidity conditions. Precautions should be taken to minimise exposure to atmospheric humidity or water, as carbon dioxide may be formed which, in closed containers can result in pressurisation. Care should be taken when re-opening partly used containers. Due to the sensitivity to humidity of the isocyanates, this product should be kept in the original container, or under pressure of dried nitrogen, for example.

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## \*8. EXPOSURE CONTROLS/PERSONAL PROTECTION 98/24/EC

People with a history of asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which isocyanate containing products are used.

### 8.1 Occupational Exposure Limits (TLV) AGCIH 2002

	TWA		STEL			Year
	ppm	mg/m3	ppm	mg/m3		
n-butyl acetate	150	713	200	950		1998
1-methoxypropyl acetate	50	275	100	550	Recommended	Dermal
Xylene (mixture of isomers)	100	434	150	651	A4	1996
Ethylbenzene	100	434	125	543		1976
Naphtha solvent (oil), light aromatic	50	260			Internal value	
1,2,4-trimethylbenzene	25	123				1987

A4 - Non classified as carcinogenic in humans.

8.2 Engineering measures: Provide adequate ventilation. Where reasonably practicable, this should be achieved by the use of local exhaust ventilation and good general extraction. If these measures are not sufficient to maintain concentrations of particles and vapours below the Occupational Exposure Limits, suitable respiratory protection must be worn.

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Vapour density: 3,9 Air = 1 at 20°C Relative

Lower explosive limit: 1,4 % Volume

Ventilation requirement: 73 m3/l Air/Preparation

to keep below 1/10 of the Lower Explosive Limit.

8.3 Protection of respiratory system: Avoid the inhalation of vapours. If the working area is insufficiently ventilated, or when operators, whether spraying or not, are inside the spraybooth, air-fed respiratory protective equipment is required.

- Mask: For short periods of work, an air-fed mask or a combination of charcoal filter and particle filter mask is recommended.

8.4 Protection of eyes and face: Install emergency eye baths close to the working area. Goggles: Safety goggles designed to protect against liquid splashes. Face shield: No.

8.5 Protection of hands and skin: Install emergency showers close to the working area. Barrier creams may help to protect the exposed areas of the skin. Barrier creams should not be applied once exposure has occurred. Gloves: Protective gloves of a suitable material. Boots: No. Apron: No. Clothing: Personnel should wear antistatic clothing made of natural fibre or of high temperature resistant synthetic fibre. Wash contaminated work clothes before wearing them again.

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## **\*9. PHYSICAL AND CHEMICAL PROPERTIES**

- Physical state: Liquid
- Colour: Colourless
- Odour: Characteristic
- Viscosity: 12 sec.FC4 20°C ASTM D 1200-88
- Specific gravity: 0,993 g/cc at 20°C MX503  
0,994 g/cc at 20°C MX603
- Boiling point: 126,3°C at 760 mmHg
- Flash point: 28°C Setaflash
- Vapour pressure: 6,7 mmHg at 20°C

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## **\*10. STABILITY AND REACTIVITY**

10.1 Stability: Stable under recommended storage and handling conditions.

10.2 Possible dangerous reaction with water, oxidising agents, acids, alkalis, amines, alcohols, peroxides. Exothermic reaction with amines and alcohols. Reacts with water under evolution of CO<sub>2</sub>.

10.3 Thermal decomposition: As consequence of thermal decomposition, hazardous products may be produced: nitrogen oxides, hydrocyanic acid..

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## **\*11. TOXICOLOGICAL INFORMATION**

No experimental toxicological data on the preparation is available.

11.1 Toxicological effects: Exposure to solvent vapour concentrations 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 kidneys, liver and central nervous system. Symptoms and signs include: headache, dizziness, fatigue, muscular weakness, drowsiness and, in extreme cases, unconsciousness. Ingestion may result in the following effects: sore throat, abdominal pain, drowsiness, nausea, vomiting and diarrhoea; other effects may be as described for exposure to vapours. Repeated or prolonged contact with the solvents of the preparation, may cause removal of natural fat from the skin, resulting in non-allergic

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contact dermatitis and absorption through the skin. Liquid splashes in the eyes may cause irritation and reversible damage.

- Based on the properties of the isocyanate content of this product and existing technical data of similar preparations, it can be concluded that respiratory exposure may cause acute irritation and/or sensitisation of the respiratory system, resulting in asthmatic symptoms, wheezing and a tightness of the chest. Sensitised persons may subsequently show asthmatic symptoms when exposed to airborne concentrations of isocyanates well below the occupational exposure limit. Repeated exposure may lead to permanent respiratory disability. In case of prolonged contact, the skin can dry up and irritation could appear.

11.2 Dose and lethal concentrations for individual ingredients:

	DL50 Oral		DL50 Cutaneous		CL50 Inhalation	
	mg/kg		mg/kg		mg/l.4hours	
n-butyl acetate	10768	Rat	17600	Rabbit	9,7	Rat
1-methoxypropyl acetate	8532	Rat				
Xylene (mixture of isomers)	4300	Rat	1700	Rabbit	22	Rat
Ethylbenzene	3500	Rat	17800	Rabbit		
Naphtha solvent (oil), light aromatic	3900	Rat	3160	Rabbit		
1,2,4- trimethylbenzene	5000	Rat				

For more information about ingredients dangerous to health, see sections 2 and 8.

## \*12. ECOLOGICAL INFORMATION

No experimental ecotoxicological data on the preparation as such is available.

12.1 Spills on the soil: Prevent contamination of soil.

12.2 Spills in water: Harmful to aquatic organisms. May cause long-term adverse effects on the aquatic environment. Do not allow to escape into drains, sewers or water courses.

- Hydrolysis: Reacts with water forming carbon dioxide and a solid insoluble product with high melting point (polyurea). This reaction is accelerated by surfactants (e.g. detergents) or by watersoluble solvents.

12.3 Emissions to the atmosphere: Avoid any solvent release into the atmosphere.

- VOC: 611 g/l MX503 ASTM D-3960  
596 g/l MX603

- Aromatic hydrocarbons: 21 % Weight

12.4 Ecotoxicological data for individual ingredients:

	CL50		CE50		CI50	
	mg/l.96hours		mg/l.48hours		mg/l.72hours	
n-butyl acetate	18	Fishes				
Xylene (mixture of isomers)	75	Fishes	16	Daphnia		
Ethylbenzene	12	Fishes			33	Algae
Naphtha solvent (oil), light aromatic	9,2	Fishes	6,1	Daphnia		

## 13. CONSIDERATIONS FOR DISPOSAL

13.1 Handling of waste: Take all necessary measures to prevent the production of waste whenever possible. Analyse possible methods for revaluation or recycling. Do not discharge into drains or the environment, dispose of at an authorised waste collection point. Waste should be handled and disposed of in accordance with current local/national regulations. For exposure controls and personal protection measures, see section 8.

13.2 Disposal of empty containers: Emptied containers and packaging should be disposed of in accordance with currently local/national regulations.

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13.3 Procedures for neutralising or destroying the product: Controlled incineration in special facilities for chemical waste, but in accordance with local regulations.

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**\*14. TRANSPORT INFORMATION**

PAINT RELATED MATERIAL (FP>23°C)

14.1 Land:           Transport by road:       ADR 2003  
                          Transport by rail:        RID  
Class: 3            Packaging group: III    UN no. 1263  
Transport document:            Consignment paper  
Written instructions.

14.2 Sea:            Transport by ship:        IMDG 30-00  
Class: 3            Packaging group: III    UN no. 1263  
Emergency Sheet (EmS):        3-05, 07  
First Aid Guide (MFAG):        310, 313  
Marine pollutant:                No  
Transport document:            Shipping Bill of lading

14.3 Air:            Transport by plane:       IATA/ICAO  
Class: 3            Packaging group: III    UN no. 1263  
Transport document:            Air Bill of lading

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**\*15. INFORMATION ON REGULATIONS**

15.1 EC Labelling: Xn

This product is FLAMMABLE and HARMFUL in accordance with Guideline 67/548/CEE - 2001/59/CE and 1999/45/CE - 2001/60/CE.

R10    Flammable.  
R20/21 Harmful by inhalation and in contact with skin.  
R43    May cause sensitisation by skin contact.  
R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S23    Do not breathe vapour/spray.  
S36/37 Wear suitable protective clothing and gloves.  
S51    Use only in well-ventilated areas.  
P91    Contains isocyanates. See information supplied by the manufacturer.

- Dangerous ingredients: Xylene (mixture of isomers)

15.2 Type of packaging: According to current legislation.

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**\*16. OTHER INFORMATION**

Intended use: This material is to be used as a hardener component, in combination with hydroxylated polymers, mainly polyesters and polyacrylates, in order to prepare 2 component systems. Only for professional use.

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Indications for preparations containing isocyanates: Ready-to-use preparations containing isocyanates may have an irritant effect on mucous membranes -especially on breathing organs- and cause hypersensitivity reactions. Inhalation of vapour or spray mist may cause sensitisation. When handling preparations containing isocyanates all precautions required for solvent-containing preparations must be followed. Vapour and spray mist in particular should not be inhaled. Allergics and asthmatics, as well as people prone to respiratory ailments should not work with isocyanate-containing preparations.

Text of R-phrases listed in section 2:

- R10 Flammable.
- R11 Highly flammable.
- R20 Harmful by inhalation.
- R36 Irritating to eyes.
- R38 Irritating to skin.
- R43 May cause sensitisation by skin contact.
- R65 Harmful: may cause lung damage if swallowed.
- R66 Repeated exposure may cause skin dryness or cracking.
- R67 Vapours may cause drowsiness and dizziness.
- R20/21 Harmful by inhalation and in contact with skin.
- R36/37/38 Irritating to eyes, respiratory system and skin.
- R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Note P : It is unnecessary to apply the classification as carcinogenic if it can be proved that the substance contains less than 0.1% benzene (EC No. 200-753-7) in weight.

Labelling regulations: The information provided in this Material Safety Data Sheet has been written in accordance with 67/548/EEC (Substances), 88/379/EEC (Preparations) and 91/155/EEC (Material Safety Data Sheet) directives. It has been updated to Guideline 2001/59/EC (Substances), 2001/60/EC (Preparations) and 2001/58/EC (Material Safety Data Sheet).

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The information of this Material Safety Data Sheet, is based on the present state of knowledge and on current UE 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 fulfil 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.

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