ivm Chemicals
coatings & polymers technologies

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 20.07.2018 Version number 2424 Revision: 20.07.2018

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

· **1.1 Product identifier**
· **Product code** LNB77
· **Trade name:** **POLYURETHANE HARDENER**
· **1.2. Relevant identified uses of the substance or mixture and uses advised against**
Paint and relative material only for wood
· **Application of the substance / the mixture** For professional use

· **1.3 Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
IVM Chemicals srl
Viale della Stazione 3 - 27020 Parona (PV) Italy tel +39 038425441

· **Further information obtainable from:**
Environmental Health and safety office
hseoffice@ivmchemicals.com

· **1.4 Emergency telephone number:**
From 8.30 to 17.30 0039 038 425 441
Out of the above mentioned hours, Saturdays and Sundays and during periods of closure for holidays please call: 0039 0384 254491

SECTION 2: Hazards identification

· **2.1 Classification of the substance or mixture**
· **Classification according to Regulation (EC) No 1272/2008**


GHS02 flame

Flam. Liq. 2	H225	Highly flammable liquid and vapour.


GHS08 health hazard

Repr. 2	H361d	Suspected of damaging the unborn child.
STOT RE 2	H373	May cause damage to organs through prolonged or repeated exposure.
Asp. Tox. 1	H304	May be fatal if swallowed and enters airways.


GHS07

Skin Irrit. 2	H315	Causes skin irritation.
Eye Irrit. 2	H319	Causes serious eye irritation.
Skin Sens. 1	H317	May cause an allergic skin reaction.
STOT SE 3	H336	May cause drowsiness or dizziness.

· **2.2 Label elements**
· **Labelling according to Regulation (EC) No 1272/2008**
The product is classified and labelled according to the CLP regulation.
· **Hazard pictograms**


GHS02 GHS07 GHS08

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· **Signal word** Danger

· **Hazard-determining components of labelling:**
toluene
Aromatic polyisocyanate
n-butyl acetate
Aromatic polyisocyanate

· **Hazard statements**
H225 Highly flammable liquid and vapour.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H317 May cause an allergic skin reaction.
H361d Suspected of damaging the unborn child.
H336 May cause drowsiness or dizziness.
H373 May cause damage to organs through prolonged or repeated exposure.
H304 May be fatal if swallowed and enters airways.

· **Precautionary statements**

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P321	Specific treatment (see on this label).
P331	Do NOT induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P362+P364	Take off contaminated clothing and wash it before reuse.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local.

· **Additional information:**
EUH204 Contains isocyanates. May produce an allergic reaction.

· **2.3 Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

· **3.2 Chemical characterisation: Mixtures**

· **Description:** Mixture: consisting of the following components.

· **Dangerous components:**

CAS: 123-86-4 EINECS: 204-658-1 Reg.nr.: 01-2119485493-29-XXXX	n-butyl acetate Flam. Liq. 3, H226 STOT SE 3, H336	30-49.9%
CAS: 141-78-6 EINECS: 205-500-4 Reg.nr.: 01-2119475103-46-XXXX	ethyl acetate Flam. Liq. 2, H225 Eye Irrit. 2, H319; STOT SE 3, H336	25-29.9%
CAS: 108-88-3 EINECS: 203-625-9 Reg.nr.: 01-2119471310-51-XXXX	toluene Flam. Liq. 2, H225 Repr. 2, H361d; STOT RE 2, H373; Asp. Tox. 1, H304 Skin Irrit. 2, H315; Eye Irrit. 2, H319; STOT SE 3, H336 Aquatic Chronic 3, H412	20-24.9%

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CAS: 9017-01-0	Aromatic polyisocyanate Eye Irrit. 2, H319; Skin Sens. 1, H317	12.5-15%
CAS: 53317-61-6	Aromatic polyisocyanate Eye Irrit. 2, H319; Skin Sens. 1, H317	5-9.99%

· **Additional information:** For the wording of the listed hazard phrases refer to section 16.

SECTION 4: First aid measures

· **4.1 Description of first aid measures**
· **General information:**
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
personal protective equipment for first aid responders is recommended. (please see section 8)
· **After inhalation:**
Supply fresh air and to be sure call for a doctor.
In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:**
Remove contaminated clothing.
Immediately wash with water and soap, or a recognized skin cleanser, and rinse thoroughly.
Take off immediately all contaminated clothing, include underwear and shoes (if necessary).
Rinse thoroughly with plenty of water for at least 20 minutes and take medical advise. I medical advise is needed have products container or label at hand.
· **After eye contact:**
Rinse opened eye for several minutes under running water. Then consult a doctor.
· **After swallowing:** Do not induce vomiting; call for medical help immediately.
· **4.2 Most important symptoms and effects, both acute and delayed**
For symptoms and effects caused by substances, see chap. 11th
· **4.3 Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

SECTION 5: Firefighting measures

· **5.1 Extinguishing media**
· **Suitable extinguishing agents:** Alcohol resistant foam, CO, powder, water spray/mist.
· **For safety reasons unsuitable extinguishing agents:**
Do not use a jet water stream as it may scatter and spread fire.
· **5.2 Special hazards arising from the substance or mixture**
Formation of toxic gases is possible during heating or in case of fire.
· **5.3 Advice for firefighters**
Cool by spraying with water the containers to prevent product decomposition and the development of substances potentially hazardous for health and also, in the case of closed containers exposed to flames to prevent explosions.
· **Protective equipment:**
Hardhat with visor, fireproof clothing, suitable gloves and if necessary mouth respiratory protective device.

SECTION 6: Accidental release measures

· **6.1 Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
Keep away from ignition sources.

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· **6.2 Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
· **6.3 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 item 13.
Ensure adequate ventilation.
· **6.4 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.

SECTION 7: Handling and storage

· **7.1 Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Protect against electrostatic charges.
Use explosion-proof apparatus / fittings and spark-proof tools.
· **Information about fire - and explosion protection:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.

· **7.2 Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:**
Store in a cool, well-ventilated area, away from heat and sources of ignition
Provide solvent resistant, sealed floor.
Observe the label precautions, the expiration date for the use, if indicated, is from delivery date.
In cases there is no reported deadline, it means that the product must be used within 8 months.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:**
Keep container tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
· **7.3 Specific end use(s)**
Those typical of the product and the instructions in the data sheet if required.

*

SECTION 8: Exposure controls/personal protection

· **Additional information about design of technical facilities:** No further data; see item 7.

· **8.1 Control parameters**

· **Ingredients with limit values that require monitoring at the workplace:**	
123-86-4 n-butyl acetate	
WEL	Short-term value: 966 mg/mį, 200 ppm Long-term value: 724 mg/mį, 150 ppm
141-78-6 ethyl acetate	
WEL	Short-term value: 400 ppm Long-term value: 200 ppm

· **DNELs**		
123-86-4 n-butyl acetate		
Oral	DNEL	2 mg/kg bw/d (population)
Inhalative	DNEL acuto/agudo/ostre/aigu/acute/akut	600 mg/mc (Workers)

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		300 mg/mc (population)
	DNEL	300 mg/mc (Workers)
		35.7 mg/mc (population)
Irritation of skin	DNEL acuto/agudo/ostre/aigu/acute/akut	11 mg/kg bw/d (Workers)
		6 mg/kg bw/d (population)
	DNEL	11 mg/kg bw/d (Workers)
		6 mg/kg bw/d (population)
141-78-6 ethyl acetate		
Oral	DNEL	4.5 mg/kg bw/d (population)
Inhalative	DNEL acuto/agudo/ostre/aigu/acute/akut	1,468 mg/mc (Workers)
		734 mg/mc (population)
	DNEL	734 mg/mc (Workers)
		367 mg/mc (population)
Irritation of skin	DNEL	63 mg/kg bw/d (Workers)
		37 mg/kg bw/d (population)
108-88-3 toluene		
Inhalative	DNEL acuto/agudo/ostre/aigu/acute/akut	384 mg/mc (Workers)
	DNEL	192 mg/mc (Workers)
Irritation of skin	DNEL	384 mg/kg bw/d (Workers)

· ***PNECs***

123-86-4 n-butyl acetate	
PNEC Acqua dolce/water/woda sǧdka/eau/agua/水	0.18 mg/L (_)
PNEC Suolo/earth/suelo/tƒtsцpO/地面	0.0903 mg/kg (_)
141-78-6 ethyl acetate	
PNEC Acqua dolce/water/woda sǧdka/eau/agua/水	0.24 mg/L (_)
PNEC Suolo/earth/suelo/tƒtsцpO/地面	0.148 mg/kg (_)
108-88-3 toluene	
PNEC Acqua dolce/water/woda sǧdka/eau/agua/水	0.68 mg/L (_)
PNEC Suolo/earth/suelo/tƒtsцpO/地面	2.89 mg/kg (_)

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

· ***8.2 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.
Avoid contact with the eyes and skin.
Pregnant women should strictly avoid inhalation or skin contact.

· ***Respiratory protection:***
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

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· ***Protection of hands:***



Protective gloves

The glove material has to be impermeable and resistant to the product and in accordance with EN 374 and Directive 89/686/EEC.
Due to missing tests no recommendation to the glove material can be given for the product.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· ***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.

· ***Penetration 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:***



Glasses (EN166) or other protective equipment

SECTION 9: Physical and chemical properties

· ***9.1 Information on basic physical and chemical properties***	
· ***General Information***	
· ***Appearance:***	
· ***Form:***	*Fluid*
· ***Colour:***	*According to product specification*
· ***Odour:***	*Characteristic*
· ***Odour threshold:***	*Not determined.*
· ***pH-value:***	*Not determined.*
· ***Change in condition***	
· ***Melting point/freezing point:***	*Undetermined.*
· ***Initial boiling point and boiling range:***	*77 °C*
· ***Flash point:***	*-4 °C*
· ***Flammability (solid, gas):***	*Not applicable.*
· ***Ignition temperature:***	*370 °C*
· ***Decomposition temperature:***	*Not determined.*
· ***Auto-ignition temperature:***	*Product is not selfigniting.*
· ***Explosive properties:***	*Product is not explosive. However, formation of explosive air/vapour mixtures are possible.*
· ***Explosion limits:***	
· ***Lower:***	*1.2 Vol %*
· ***Upper:***	*11.5 Vol %*

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· **Vapour pressure at 20 °C:**	97 hPa
· **Density at 20 °C:**	0.963 g/cmį
· **Relative density**	Not determined.
· **Vapour density**	Not determined.
· **Evaporation rate**	Not determined.
· **Solubility in / Miscibility with**	
· **water:**	Not miscible or difficult to mix.
· **Partition coefficient: n-octanol/water:**	Not determined.
· **Viscosity:**	
· **Dynamic:**	Not determined.
· **Kinematic at 20 °C:**	29 s (ISO 3 mm)
· **Oxidising properties :**	N.A.
· **Solvent content:**	
· **VOC and Total VOC (organic solvents + reactive solvents if any)**	76.53 %
· **VOC (EC)**	736.9 g/l
· **Solids content:**	23.4 %
· **9.2 Other information**	No further relevant information available.

SECTION 10: Stability and reactivity

· **10.1 Reactivity** Typical of the product as indicated in the data sheet
· **10.2 Chemical stability**
The product is stable in normal conditions of storage and use recommended
· **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
· **10.3 Possibility of hazardous reactions**
Reacts with strong acids and oxidising agents.
Vapours may form explosive mixtures with air
· **10.4 Conditions to avoid** No further relevant information available.
· **10.5 Incompatible materials:** No further relevant information available.
· **10.6 Hazardous decomposition products:**

In case of possible formation of combustion:
Carbon monoxide and carbon dioxide

SECTION 11: Toxicological information

· **11.1 Information on toxicological effects**
· **Acute toxicity** Based on available data, the classification criteria are not met.

· **LD/LC50 values relevant for classification:**		
123-86-4 n-butyl acetate		
Oral	LD50	10,760 mg/kg (mouse)
Dermal	LD50	14,000 mg/kg (rabbit)
Inhalative	LC50/4 h	21.1 mg/l (mouse)
141-78-6 ethyl acetate		
Oral	LD50	4,934 mg/kg (rabbit)

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Dermal	LD50	20,001 mg/kg (rabbit)
Inhalative	LC50/4 h	1,600 mg/l (mouse)
	LC0	22.6 ppm (mouse)
108-88-3 toluene		
Oral	LD50	5,000 mg/kg (mouse)
Dermal	LD50	12,124 mg/kg (rabbit)
Inhalative	LC50/4 h	25.7 mg/l (mouse)
9017-01-0 Aromatic polyisocyanate		
Oral	LD50	2,001 mg/kg (mouse) (OECD TG 423) Esami tossicologici su un prodotto compatibile
53317-61-6 Aromatic polyisocyanate		
Oral	LD50	5,001 mg/kg (mouse)

· ***Primary irritant effect:***
· ***Skin corrosion/irritation***
Causes skin irritation.
· ***Serious eye damage/irritation***
Causes serious eye irritation.
· ***Respiratory or skin sensitisation***
May cause an allergic skin reaction.
· ***CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)***
· ***Germ cell mutagenicity*** Based on available data, the classification criteria are not met.
· ***Carcinogenicity*** Based on available data, the classification criteria are not met.
· ***Reproductive toxicity***
Suspected of damaging the unborn child.
· ***STOT-single exposure***
May cause drowsiness or dizziness.
· ***STOT-repeated exposure***
May cause damage to organs through prolonged or repeated exposure.
· ***Aspiration hazard***
May be fatal if swallowed and enters airways.

· ***More information***
Monomers / polymers isocyanate
Particular characteristics / effects; Over-exposure there is a danger, as a function of concentration, irritation of the eyes, nose, throat and respiratory tract.
Possible the delayed appearance of disorders and development of a form of hypersensitivity (respiratory disorders, cough, asthma). In the case of persons hypersensitive reactions may occur already at concentrations of isocyanate very low, even below the TLV value. In case of prolonged contact with the skin are possible irritant effects and dehydrating.

*

SECTION 12: Ecological information

· **12.1 Toxicity**

· **Aquatic toxicity:**	
123-86-4 n-butyl acetate	
EC50	397 mg/l (algae) (72 h)
	44 mg/l (daphnia) (48 h)
LC50 (96h)	18 mg/l (Fish)
141-78-6 ethyl acetate	
EC50	165 mg/l (daphnia) (48 h)

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LC50 (96h)	230 mg/l (Fish)
108-88-3 toluene	
EC50	134 mg/l (algae) (96 h)
	3.78 mg/l (daphnia) (48 h)
LC50 (96h)	5.5 mg/l (Fish)

· **12.2 Persistence and degradability** No further relevant information available.

· Substances Easily biodegradable		
123-86-4	n-butyl acetate	.
141-78-6	ethyl acetate	.
108-88-3	toluene	.

· **12.3 Bioaccumulative potential** No further relevant information available.
· **12.4 Mobility in soil** No further relevant information available.
· **Additional ecological information:**
· **General notes:**
Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
· **12.5 Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **12.6 Other adverse effects** No further relevant information available.

SECTION 13: Disposal considerations

· **13.1 Waste treatment methods**
· **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
Hand over to hazardous waste disposers.
The code number of the product as is 080111

· **Uncleaned packaging:**
· **Recommendation:** Disposal must be made according to official regulations.

SECTION 14: Transport information

· **14.1 UN-Number**
· **ADR, IMDG, IATA** UN1263

· **14.2 UN proper shipping name**
· **ADR** UN1263 PAINT, special provision 640D
· **IMDG, IATA** PAINT

· **14.3 Transport hazard class(es)**

· **ADR, IMDG, IATA**



· **Class** 3 Flammable liquids.

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· **Label**	3
· **14.4 Packing group**	
· **ADR, IMDG, IATA**	II
· **14.5 Environmental hazards:**	
· **Marine pollutant:**	No
· **14.6 Special precautions for user**	Warning: Flammable liquids.
· **Danger code (Kemler):**	33
· **EMS Number:**	F-E,S-E
· **Stowage Category**	B
· **14.7 Transport in bulk according to Annex II of Marpol and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **ADR**	
· **Limited quantities (LQ)**	5L
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **Transport category**	2
· **Tunnel restriction code**	D/E
· **IMDG**	
· **Limited quantities (LQ)**	5L
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **UN "Model Regulation":**	UN 1263 PAINT, SPECIAL PROVISION 640D, 3, II

SECTION 15: Regulatory information

· **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
Directive n. : 80/1107/CEE, n. 82/605/CEE, n. 83/477/CEE, n. 86/188/CEE e n. 88/642/CEE, 89/391/CEE, 89/654/CEE, 89/655/CEE, 89/656/CEE, 90/269/CEE, 90/270/CEE, 90/394/CEE, 90/679/CEE, 93/88/CEE, 95/63/CE, 97/42/CE, 98/24/CE, 99/38/CE, 99/92/CE, 2001/45/CE, 2002/44,2003/10/CE, 2003/18/CE , 2004/40/CE,2006/25
DIRECTIVE 2012/18/EU
P5c Flammable Limit 1: 5000 t
Limit 2: 50000 t

· **Various regulations** For uses not regulated by D. 2004/42/EC-For professional use only
· **Seveso category** P5c FLAMMABLE LIQUIDS
· **Qualifying quantity (tonnes) for the application of lower-tier requirements** 5,000 t
· **Qualifying quantity (tonnes) for the application of upper-tier requirements** 50,000 t
· **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3, 40, 48

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· ***National regulations:***
The product is subject to be labeled according with the prevailing version of the regulations on hazardous substances.
· ***15.2 Chemical safety assessment:*** *A Chemical Safety Assessment has not been carried out.*

SECTION 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.

· ***Relevant phrases***
H225 Highly flammable liquid and vapour.
H226 Flammable liquid and vapour.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.
H361d Suspected of damaging the unborn child.
H373 May cause damage to organs through prolonged or repeated exposure.
H412 Harmful to aquatic life with long lasting effects.

· ***Department issuing SDS:*** *IVM Chemicals Srl*
· ***Contact:*** *Carlo Porta*
· ***Abbreviations and acronyms:***
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
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)
VOC: Volatile Organic Compounds (USA, EU)
DNEL: Derived No-Effect Level (REACH)
PNEC: Predicted No-Effect Concentration (REACH)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Flam. Liq. 2: Flammable liquids ï Category 2
Flam. Liq. 3: Flammable liquids ï Category 3
Skin Irrit. 2: Skin corrosion/irritation ï Category 2
Eye Irrit. 2: Serious eye damage/eye irritation ï Category 2
Skin Sens. 1: Skin sensitisation ï Category 1
Repr. 2: Reproductive toxicity ï Category 2
STOT SE 3: Specific target organ toxicity (single exposure) ï Category 3
STOT RE 2: Specific target organ toxicity (repeated exposure) ï Category 2
Asp. Tox. 1: Aspiration hazard ï Category 1
Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard ï Category 3
· ***Sources***
REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL and following amendments
Agency ECHA web site
INRS Fiche Toxicologique
· **** Data compared to the previous version altered.***