

Hardener #230

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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

1.1. Product identifier

Product form : Mixture
Name : Hardener #230
Product code : RS230

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

Use of the substance/mixture : Additive
Adhesives: Component
Catalyst

1.3. Details of the supplier of the safety data sheet

Nu Flow Technologies (2000) Inc.
106 McMaster Ave..
L1S 2E7 Ajax, Ontario
CANADA

Attn: Mrs. Deborah Read
Tel: 905-433-5510
Email: dread@nuflowtech.com

1.4. Emergency telephone number

Country	Organization/Company	Address	Emergency number
MEXICO	Servicio de Informacion Toxicologica Sintox	Tintoreto #32 Edif. a Desp. Col. Nochebuena Mixcoac México, D.F.	1 800 009 2800 +52 55 5611 2634 /+52 55 5598 9095
UNITED STATES OF AMERICA	American Association of Poison Control Centers		1-800-222-1222

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (GHS-US)

Skin Corr. 1B H314
Skin Sens. 1 H317

Full text of H-phrases: see section 16

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US) :



GHS05

GHS07

Signal word (GHS-US) :

Danger

Hazard statements (GHS-US) :

H314 - Causes severe skin burns and eye damage
H317 - May cause an allergic skin reaction

Precautionary statements (GHS-US) :

P260 - Do not breathe fume, mist, vapors
P264 - Wash hands thoroughly after handling
P280 - Wear eye protection, protective clothing, protective gloves
P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting
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
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

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2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS-US)

Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	%	Classification (GHS-US)
hydrocarbons, C9-unsaturated, polymerised	(CAS No) 71302-83-5	50 - 80	Skin Sens. 1, H317 Aquatic Chronic 3, H412
tetraethylenepentamine	(CAS No) 112-57-2	30 - 50	Acute Tox. 3 (Dermal), H311 Skin Corr. 1B, H314 Skin Sens. 1, H317 Aquatic Chronic 2, H411

Full text of H-phrases: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
First-aid measures after inhalation	: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a poison center or doctor/physician.
First-aid measures after skin contact	: Specific measures (see instructions on this label). Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Gently wash with plenty of soap and water. Get medical advice/attention. Specific treatment (see instructions on this label). Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Immediately call a poison center or doctor/physician.
First-aid measures after eye contact	: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor/physician.
First-aid measures after ingestion	: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth. Do NOT induce vomiting. Immediately call a poison center or doctor/physician.

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

Symptoms/injuries	: Causes severe skin burns and eye damage.
Symptoms/injuries after inhalation	: May cause an allergic skin reaction.
Symptoms/injuries after skin contact	: Repeated exposure to this material can result in absorption through skin causing significant health hazard. Harmful in contact with skin.
Symptoms/injuries after ingestion	: Swallowing a small quantity of this material will result in serious health hazard.

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

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: Foam. Dry powder. Carbon dioxide. Water spray. Sand.
Unsuitable extinguishing media	: Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Reactivity	: Thermal decomposition generates : Corrosive vapors.
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5.3. Advice for firefighters

Firefighting instructions	: Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.
Protection during firefighting	: Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures	: Evacuate unnecessary personnel.
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6.1.2. For emergency responders

- Protective equipment : Equip cleanup crew with proper protection.
Emergency procedures : Ventilate area.

6.2. Environmental precautions

Avoid release to the environment. Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

- Methods for cleaning up : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. Do not breathe fume, vapors.
Hygiene measures : Do not eat, drink or smoke when using this product. Wash contaminated clothing before reuse. Contaminated work clothing should not be allowed out of the workplace. Wash skin thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Comply with applicable regulations.
Storage conditions : Keep only in the original container in a cool, well ventilated place away from : Direct sunlight, Heat-ignition. Keep container closed when not in use.
Incompatible products : Strong bases. Strong acids.
Incompatible materials : Sources of ignition. Direct sunlight.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Hardener #230	
ACGIH	Not applicable
OSHA	Not applicable
hydrocarbons, C9-unsaturated, polymerised (71302-83-5)	
ACGIH	Not applicable
OSHA	Not applicable
tetraethylenepentamine (112-57-2)	
ACGIH	Not applicable
OSHA	Not applicable

8.2. Exposure controls

- Appropriate engineering controls : Provide adequate general and local exhaust ventilation.
Personal protective equipment : Protective clothing. Protective goggles. Gloves. Avoid all unnecessary exposure.



- Hand protection : Wear protective gloves.
Eye protection : Chemical goggles or face shield.
Skin and body protection : Wear suitable protective clothing.
Respiratory protection : Where exposure through inhalation may occur from use, respiratory protection equipment is recommended.
Other information : Do not eat, drink or smoke during use.

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SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Color	: Blue
Odor	: odorless
Odor threshold	: No data available
pH	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: 250 °F
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: No data available
Explosion limits	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Vapor pressure	: No data available
Relative density	: No data available
Relative vapor density at 20 °C	: No data available
Solubility	: Water: Solubility in water of component(s) of the mixture : • : • tetraethylenepentamine: Complete
Log Pow	: No data available
Log Kow	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Thermal decomposition generates : Corrosive vapors.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

Fume. Carbon monoxide. Carbon dioxide. Thermal decomposition generates : Corrosive vapors.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified
(Based on available data, the classification criteria are not met)

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tetraethylenepentamine (112-57-2)	
LD50 oral rat	3990 mg/kg (Rat; Literature study; 3250 mg/kg bodyweight; Rat; Literature study)
LD50 dermal rabbit	660 mg/kg (Rabbit; Literature study; 660-1260 mg/kg bodyweight; Rabbit; Literature study)
ATE US (oral)	3990,000 mg/kg body weight
ATE US (dermal)	660,000 mg/kg body weight

Skin corrosion/irritation	: Causes severe skin burns and eye damage.
Serious eye damage/irritation	: Not classified
Respiratory or skin sensitization	: May cause an allergic skin reaction.
Germ cell mutagenicity	: Not classified (Based on available data, the classification criteria are not met)Based on available data, the classification criteria are not met
Carcinogenicity	: Not classified (Based on available data, the classification criteria are not met)
Reproductive toxicity	: Not classified (Based on available data, the classification criteria are not met)Based on available data, the classification criteria are not met
Specific target organ toxicity (single exposure)	: Not classified (Based on available data, the classification criteria are not met)
Specific target organ toxicity (repeated exposure)	: Not classified (Based on available data, the classification criteria are not met)
Aspiration hazard	: Not classified (Based on available data, the classification criteria are not met)
Potential Adverse human health effects and symptoms	: Harmful if swallowed. Harmful in contact with skin. Based on available data, the classification criteria are not met.
Symptoms/injuries after inhalation	: May cause an allergic skin reaction.
Symptoms/injuries after skin contact	: Repeated exposure to this material can result in absorption through skin causing significant health hazard. Harmful in contact with skin.
Symptoms/injuries after ingestion	: Swallowing a small quantity of this material will result in serious health hazard.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - water : Toxic to aquatic life with long lasting effects.

tetraethylenepentamine (112-57-2)	
EC50 Daphnia 1	24,1 mg/l (EC50; EU Method C.2; 48 h; Daphnia magna; Static system)
LC50 fish 2	420 mg/l (LC50; EU Method C.1; 96 h; Poecilia reticulata; Semi-static system; Fresh water; Experimental value)
Threshold limit algae 1	0,5 mg/l (NOEC; OECD 201: Alga, Growth Inhibition Test; 72 h; Selenastrum capricornutum)
Threshold limit algae 2	6,8 mg/l (EC50; OECD 201: Alga, Growth Inhibition Test; 72 h; Selenastrum capricornutum)

12.2. Persistence and degradability

Hardener #230	
Persistence and degradability	May cause long-term adverse effects in the environment. Not established.

tetraethylenepentamine (112-57-2)	
Persistence and degradability	Not readily biodegradable in water. Low potential for Mobility in soil. Adsorbs into the soil.

12.3. Bioaccumulative potential

Hardener #230	
Bioaccumulative potential	Not established.

tetraethylenepentamine (112-57-2)	
BCF other aquatic organisms 1	4,2 (BCF)
Log Pow	-3,16 (Calculated; EPIWIN)
Bioaccumulative potential	Low bioaccumulation potential (BCF < 500).

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12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Effect on the global warming : No known ecological damage caused by this product.

Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Transport document description : UN2320 Tetraethylenepentamine, 8, III

UN-No.(DOT) : UN2320

Proper Shipping Name (DOT) : Tetraethylenepentamine

Department of Transportation (DOT) Hazard Classes : 8 - Class 8 - Corrosive material 49 CFR 173.136

Hazard labels (DOT) : 8 - Corrosive



Packing group (DOT) : III - Minor Danger

DOT Packaging Non Bulk (49 CFR 173.xxx) : 203

DOT Packaging Bulk (49 CFR 173.xxx) : 241

DOT Special Provisions (49 CFR 172.102) : IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672).

T4 - 2.65 178.274(d)(2) Normal..... 178.275(d)(3)

TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = $97 / 1 + a (tr - tf)$ Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling.

DOT Packaging Exceptions (49 CFR 173.xxx) : 154

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 5 L

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 60 L

DOT Vessel Stowage Location : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.

DOT Vessel Stowage Other : 52 - Stow "separated from" acids

Additional information

Other information : No supplementary information available.

ADR

Transport document description : UN 2320 TETRAETHYLENEPENTAMINE, 8, III, (E)

Packing group (ADR) : III

Class (ADR) : 8 - Corrosive substances

Hazard identification number (Kemler No.) : 80

Classification code (ADR) : C7

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Hazard labels (ADR) : 8 - Corrosive substances



Orange plates :



Tunnel restriction code (ADR) : E

Limited quantities (ADR) : 5I

Excepted quantities (ADR) : E1

Transport by sea

UN-No. (IMDG) : 2320

Proper Shipping Name (IMDG) : TETRAETHYLENEPENTAMINE

Class (IMDG) : 8 - Corrosive substances

Packing group (IMDG) : III - substances presenting low danger

Air transport

UN-No. (IATA) : 2320

Proper Shipping Name (IATA) : Tetraethylenepentamine

Class (IATA) : 8 - Corrosives

Packing group (IATA) : III - Minor Danger

SECTION 15: Regulatory information

15.1. US Federal regulations

No additional information available

15.2. International regulations

CANADA

No additional information available

EU-Regulations

No additional information available

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute Tox. 4 (Oral) H302

Acute Tox. 4 (Dermal) H312

Skin Corr. 1B H314

Skin Sens. 1 H317

Aquatic Chronic 2 H411

Full text of H-phrases: see section 16

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

Xn; R21/22

C; R34

R43

N; R51/53

Full text of R-phrases: see section 16

National regulations

No additional information available

15.3. US State regulations

No additional information available

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SECTION 16: Other information

Revision date : 07/19/2015

Other information : None.

Full text of H-phrases:

Acute Tox. 3 (Dermal)	Acute toxicity (dermal) Category 3
Aquatic Chronic 2	Hazardous to the aquatic environment - Chronic Hazard Category 2
Aquatic Chronic 3	Hazardous to the aquatic environment - Chronic Hazard Category 3
Skin Corr. 1B	Skin corrosion/irritation Category 1B
Skin Sens. 1	Skin sensitization Category 1
H311	Toxic in contact with skin
H314	Causes severe skin burns and eye damage
H317	May cause an allergic skin reaction
H411	Toxic to aquatic life with long lasting effects
H412	Harmful to aquatic life with long lasting effects

NFPA health hazard

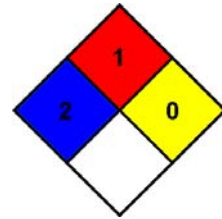
: 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.

NFPA fire hazard

: 1 - Must be preheated before ignition can occur.

NFPA reactivity

: 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



HMIS III Rating

Health

: 2 Moderate Hazard - Temporary or minor injury may occur

Flammability

: 1 Slight Hazard - Materials that must be preheated before ignition will occur. Includes liquids, solids and semi solids having a flash point above 200 F. (Class IIIB)

Physical

: 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.

Personal Protection

: C

C - Safety glasses, Gloves, Synthetic apron

SDS US (GHS HazCom 2012)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.