



SAFETY DATA SHEET

Product: FC.6990 - PU HARDENER

Revision: 03

Date: 2019/01/24

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1 - IDENTIFICATION

GHS Product identifier: FC.6990 - PU HARDENER

Other means of
identification: FC.6990Recommended use of the
chemical and restrictions
on use: Suitable for catalysis of PU products.

Restrictions on use: There are not known restrictions on use of the product.

Supplier's details: Renner Sayerlack S.A

Address: Avenida Jordano Mendes - 1500, CEP: 07776-015, Cajamar - SP - Brasil

Phone number(s): 55 11 2117 9000

Emergency phone
number: 0800 0148 110**2 - HAZARD IDENTIFICATION**

Classification of the
substance or mixture: Flammable Liquids - Category 2
Acute Toxicity - Oral - Category 5
Skin Corrosion/Irritation - Category 2
Eye Damage/Irritation - Category 2A
Sensitization Respiratory - Category 1
Sensitization Skin - Category 1
Carcinogenicity - Category 2*
Reproductive Toxicity - Category 1B
Specific Target Organ Toxicity - Single Exposure - Category 3
Hazardous to the Aquatic Environment - Acute Hazard - Category 2
* Classification due to the presence of toluene diisocyanate polym. See section 11 for more
information.

Classification system
adopted: Globally Harmonized System of Classification and Labeling of Chemicals (GHS), United
Nations.**GHS label elements, including precautionary statements**

Pictograms:



Signal word: DANGER

Hazard statement(s):
H225 Highly flammable liquid and vapour.
H303 May be harmful if swallowed.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.



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H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 May cause respiratory irritation.
H336 May cause drowsiness or dizziness.
H351 Suspected of causing cancer.
H360 May damage fertility or the unborn child.
H401 Toxic to aquatic life.

Precautionary
statement(s):**PREVENTION:**

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 Keep container tightly closed.
P240 Ground and bond container and receiving equipment.
P241 Use explosion-proof electrical, ventilating and lighting equipment.
P242 Use non-sparking tools.
P243 Take action to prevent static discharges.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P264 Wash hands thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves, protective clothing, eye protection and face protection.
P284 In case of inadequate ventilation, wear respiratory protection.

RESPONSE:

P301 + P312 IF SWALLOWED: Call a POISON CENTER or a doctor, if you feel unwell.
P302 + P352 IF ON SKIN: Wash with plenty of water.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or 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.
P308 + P313 IF exposed or concerned: Get medical advice/attention.
P312 Call a POISON CENTER or a doctor, if you feel unwell.
P321 Specific treatment.
P333 + P313 If skin irritation or rash occurs: Get medical advice/attention.
P337 + P313 If eye irritation persists: Get medical advice/attention.
P342 + P311 If experiencing respiratory symptoms: Call a POISON CENTER or a doctor.
P362 + P364 Take off contaminated clothing. And wash it before reuse.
P370 + P378 In case of fire: Use to extinction: foam, water mist, powder and carbon dioxide (CO₂).

STORAGE:



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P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.

DISPOSAL:

P501 Dispose of contents and container in accordance with local regulations.

Other hazards which do
not result in
classification:

It is not expected that product presents specific hazards.

3 - COMPOSITION/INFORMATION ON INGREDIENTS

MIXTURES

Components contributing to the hazard:

- Butyl acetate (CAS 123-86-4): 28.500 - 47.500%
- Hexane, 1,6-diisocyanato-, homopolymer (CAS 28182-81-2): 17.700 - 29.500%
- Toluene diisocyanate polymer (CAS 9017-01-0): 8.400 - 14.000%
- Ethylene glycol monoethyl ether acetate (CAS 111-15-9): 7.500 - 12.500%¹
- Ethyl acetate (CAS 141-78-6): 4.200 - 7.000%
- 2-propanol, 1-methoxy-, 2-acetate (CAS 108-65-6): 2.250 - 3.750%
- Xylene (CAS 1330-20-7): 1.800 - 3.000%
- Ethylbenzene (CAS 100-41-4): 0.450 - 0.750%
- 1,6-hexamethylene diisocyanate (CAS 822-06-0): 0.258 - 0.430%
- Toluene diisocyanate (CAS 26471-62-5): 0.168 - 0.280%

¹This product contains the following substance as an impurity: 2-ethoxyethanol².²The ingredient do not contribute to the hazard, but has occupational exposure limit established according to Section 8.

4 - FIRST-AID MEASURES

Routes of exposure

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If the victim feels unwell, contact a TOXICOLOGICAL INFORMATION CENTER or a doctor. Bring this SDS.

Skin: Wash exposed skin with sufficient amount of water to remove the material. Take off and isolate contaminated clothing and shoes. In case of skin irritation: contact a doctor. Bring this SDS.

Eye: Wash carefully with water for several minutes. In case of use of contact lenses, remove them, if possible. Keep washing. If eyes irritation continues: Contact a doctor. Bring this SDS.

Ingestion: Do not induce vomiting. Never give anything by mouth to an unconscious person. Rinse the victims mouth with water in abundance. If the victim feels unwell, contact a TOXICOLOGICAL INFORMATION CENTER or a doctor. Bring this SDS.

Most important symptoms/effects, acute and delayed: May be harmful if swallowed. Causes irritation to skin redness, pain and dryness and with eyes Redness and pain. May cause Pruritus and dermatitis. When inhaled can cause Asthma. May cause respiratory irritation. May cause drowsiness or dizziness.



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Indication of immediate medical attention and special treatment needed, if necessary:	Avoid contact with the product to help the victim. Keep victim warm and quiet. Symptomatic treatment should comprise mainly supportive measures such as correction of electrolyte disturbances, metabolic, and respiratory support. In case of skin contact do not rub the affected site.
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5 - FIRE-FIGHTING MEASURES

Suitable extinguishing media:	Appropriate: Compatible with foam, water mist, powder and carbon dioxide (CO ₂) Inappropriate: Water directly onto the burning product.
Specific hazards arising from the chemical:	The combustion or the chemical containers may form toxic and irritant gases such as carbon monoxide and carbon dioxide. Very dangerous when exposed to excessive heat or other sources of ignition such as sparks, open flames or flames of matches and cigarettes, welding operations, pilot lights and electric motors. Can accumulate static charge by flow or agitation. Vapors from heated liquid can be ignited by static discharge. Vapors are heavier than air and tend to accumulate in low or confined areas, such as sewers and basements. Can travel great distances causing retrogression of the flame or new fires both in open environments in as confined ones. Containers may explode if heated.
Special protective actions for fire-fighters:	Use self-contained breathing apparatus (SCBA) operated in positive pressure mode and complete protective clothing. Containers and tanks involved in the fire should be cooled with water mist.

6 - ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel:	Prevent sparks or flames. Do not smoke. Do not touch damaged containers or spilled material without the use of appropriate clothing. Avoid exposure to the product. Stay in a safe place, with wind from behind. Use personal protective equipment as described in Section 8.
For emergency responders:	Use protective equipment as described in Section 8.
Environmental precautions:	Avoid that the spilled material reaches waterways or sewage system.
Methods and materials for containment and cleaning up:	Use water mist or vapor suppressing foam to reduce the dispersion of vapors. Use natural barriers or spill containment. Collect spilled material and put it into containers. Adsorb the remaining product with dried sand, vermiculite or any other inert material. Put the adsorbed material in appropriate containers and remove them to a safe place. Use tools that do not cause sparks to collect absorbed material. For final destination, proceed pursuant to Section 13 of this SDS.

7 - HANDLING AND STORAGE

Precautions for safe handling

Safe handling of the substance or mixture:	Handle in a well ventilated area or with general system of ventilation/local exhaust. Avoid vapors and mists formation. Avoid exposure to the chemical, since the effects may not be felt immediately.
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General hygiene: Wash hands and face thoroughly after handling and before eating, drinking, smoking or going to the bathroom. Contaminated clothing should be changed and washed before reuse. Remove clothing and protective equipment contaminated before entering eating areas. Do not eat, drink or smoke while using this product.

Conditions for safe storage, including any incompatibilities

Technical measures for prevention of fire and explosion: Keep away from heat, sparks, open flames and hot surfaces. - Do not smoke. Keep container tightly closed. Ground the container vessel and the receiver of the product during transfers. Only use anti-sparking tools. Avoid the accumulation of electrostatic charges. Use electrical equipment, ventilation and lighting explosion proof. Use personal protective equipment as described in Section 8.

Adequate conditions: Store in a well ventilated place and away from sunlight. Keep container closed. Keep away from high temperatures and ignition sources. Keep stored at room temperature not exceeding 35°C (95°F).

Packaging compatibilities: Metal

8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Occupational exposure limit:

- Xylene:
TLV - TWA (ACGIH, 2015): 100 ppm
TLV - STEL (ACGIH, 2015): 150 ppm.
- Ethylbenzene:
TLV - TWA (ACGIH, 2012): 20 ppm.
- Butyl acetate:
TLV - TWA (ACGIH, 2015): 50 ppm
TLV - STEL (ACGIH, 2015): 100 ppm.
- Ethyl acetate:
TLV - TWA (ACGIH, 2015): 400 ppm.
- 1,6-hexamethylene diisocyanate:
TLV - TWA (ACGIH, 2015): 0,005 ppm.
- Ethylene glycol monoethyl ether acetate:
TLV - TWA (ACGIH, 2015): 5 ppm.
- 2-ethoxyethanol:
TLV - TWA (ACGIH, 2012): 5 ppm

Biological limit:

- Xylene:
BEI (ACGIH, 2015): Methylhipuric acids in urine (end of shift): 2.5 g/g creatinine
- Ethylbenzene:
BEI (ACGIH, 2012): Mandelic acid + phenylglyoxylic acid in urine (end of shift): 0.15 g/g creatinine Ns
- Ethylene glycol monoethyl ether acetate:
BEI (ACGIH, 2015): 2-Etoxiacetic acid in urine (End of shift at end of workweek): 100 mg/g creatinine.



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-2-ethoxyethanol:

BEI (ACGIH, 2012): 2-Etoxiacetic acid in urine (End of shift at end of workweek): 100 mg/g creatinine.

Observations:

Ns: The determinant is nonspecific, since it is also observed after exposure to other chemical.

Other limits and values:

-Ethyl acetate:

IDLH (NIOSH, 2010): 2000 ppm

Appropriate engineering controls:

Promote direct mechanical ventilation and exhaust system to the outside environment. These measures help reduce exposure to product.

Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection:

Safety glasses or face shield.

Skin protection:

Safety shoes, pants and long sleeve cotton shirt with clenched fists for protection of whole body against chemical splash. Butyl rubber, nitrile rubber, latex, neoprene or PVC protective gloves.

Respiratory protection:

Respiratory protective mask with filter for organic solvents.

Thermal hazards:

Does not present thermal hazards.

9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical State:

Liquid

Color:

Not available.

Odour:

Not available.

Melting point/freezing point:

Not available.

Boiling point or initial boiling point and boiling range:

Not available.

Flammability:

Not applicable.

Lower and upper explosion limit/flammability limit:

Not available.

Flash point:

-4°C - 24.8°F (closed cup)

Auto-ignition temperature:

Information regarding to:

-Butyl acetate:
425°C (797°F)

Decomposition temperature:

Not available.

pH:

Not applicable

Kinematic viscosity:

Not available.

Solubility:

N. reacts with water.

Partition coefficient n-octanol/water (log value):

Information regarding to:

-Butyl acetate:log K_{ow}: 1.78

Vapour pressure:

Information regarding to:

-Butyl acetate:



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Density and/or relative density:	115 mmHg (797°F) 1.019 to 1.059 at 25°C (77°F)
Relative vapour density:	Not available
Particle characteristics:	Not applicable
Other information:	VOC: 502.9 g/L; VOC: 4.197 lb/US gal HAP: 31.2 g/L; HAP: 0.260 lb/US gal

10 - STABILITY AND REACTIVITY

Reactivity:	Reactivity is not expected under normal conditions of temperature and pressure.
Chemical stability:	Product is stable under normal conditions of temperature and pressure.
Possibility of hazardous reactions:	Reacts with water Butyl acetate: Contact with nitrates, strong oxidizing agents, strong bases and strong acids can cause fire and explosion. Ignition occurs when butyl acetate is reacted with potassium t-butoxide. Ethyl acetate: Reacts dangerously with strong oxidizing agents and chlorosulfonic acid, which can start a fire or explosion. Toluene diisocyanate: High temperatures may cause harmful polymerisation. The polymerization can be catalyzed with strong bases and water. The reaction of polyols and isocyanates generates heat. It can react with moist organic absorbents, aluminum, zinc, brass, tin, copper, galvanized metals, acids, alcohols, amines, water, ammonia, bases, metal compounds, moisture in the air, strong oxidizers. Diisocyanates are not water soluble and sink, but react slowly at the interface. The reaction forms carbon dioxide gas and a layer of solid polyurea. Reaction with water will generate carbon dioxide and heat. Xylene: Risk of explosion when in contact with nitric acid and uranium hexafluoride. May react dangerously with oxidizing agents and sulfuric acid. Ethylbenzene: Reacts violently with oxidizing materials.
Conditions to avoid:	Elevated temperatures. Sources of ignition. Humidity. Contact with incompatible materials.
Incompatible material:	Acetaldehyde, acetanilide, vinyl acetate, metallic acetylenes, acetonitrile, hydrochloric acid, nitric acid, sulphuric acid, acids, oxidizing agents, water, alcohols, alcohol, aluminum, amines, ammonia, base, copper, very reactive compounds with hydroxyl groups, brass, spontaneous combustion of materials, radioactive materials, nitrates, oxygen, polyols and zinc.
Hazardous decomposition products:	There are not known hazardous decomposition products.

11 - TOXICOLOGICAL INFORMATION



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Acute toxicity:	May be harmful if swallowed. Acute Toxicity Estimate (ATE) ATEm (oral): 3493.747 mg/kg ATEm (dermal): > 5000 mg/kg ATEm (inhalation, 4h): > 20 mg/L Information regarding to: <u>-Xylene:</u> LD ₅₀ (oral, mice): 2119 mg/kg <u>-Ethylbenzene:</u> LD ₅₀ (oral, rats): 3500 mg/kg <u>-Ethyl acetate:</u> LD ₅₀ (oral, mice): 4100 mg/kg <u>-1,6-hexamethylene diisocyanate:</u> LD ₅₀ (oral, mice): 350 mg/kg <u>-Toluene diisocyanate:</u> LD ₅₀ (oral, rats): 4130 mg/kg <u>-Ethylene glycol monoethyl ether acetate:</u> LD ₅₀ (oral, rats): 2700 mg/kg
Skin corrosion/irritation:	Causes skin irritation with redness, pain and dryness.
Serious eye damage/irritation:	Causes severe eye irritation with Redness and pain.
Respiratory or skin sensitization:	May cause an allergic skin reaction with Pruritus and dermatitis. May cause allergy or asthma symptoms or breathing difficulties if inhaled with Asthma. Information regarding to: <u>-Toluene diisocyanate:</u> Animal studies have shown that skin contact with isocyanates may influence respiratory sensitization. I have presented evidence of causing dermatitis.
Germ cell mutagenicity:	It is not expected that the product presents germ cell mutagenicity.
Carcinogenicity:	Suspected of causing cancer, due to the presence of toluene diisocyanate polymer. Information regarding to: <u>-Toluene diisocyanate polymer:</u> Classification according to IARC based on animal studies
Reproductive toxicity:	May damage fertility or the unborn child.
STOT - Single exposure:	May cause drowsiness or dizziness may cause dizziness and nausea. May cause respiratory irritation may cause cough and sneezing. Information regarding to: <u>-Xylene:</u> At high concentrations may cause hypotension, tachycardia, vasodilation, dizziness, inco-ordination, headache, confusion, stupor and coma. <u>-Toluene diisocyanate:</u> Severe irritation of the upper respiratory tract and lungs, fluid in the lungs, permanent decrease in lung function, neurological disorders, cholinesterase depression and gastroin-testinal distress.
STOT - Repeated exposure:	It is expected that the product presents toxicity specific target organ toxicity by repeated exposure.



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Aspiration Hazard: It is not expected that the product presents aspiration hazard.

12 - ECOLOGICAL INFORMATION

Toxicity: Toxic to aquatic life.
Information regarding to:
-Xylene:
EC₅₀ (Crustacea, 48h): 8.5 mg/L
LC₅₀ (Lepomis macrochirus, 96h): 19 mg/L
NOEC (Oncorhynchus mykiss, 56 days): > 1 mg/L
-Ethylbenzene:
LC₅₀ (Fish, 96h): 4.2 mg/L
ErC₅₀ (Selenastrum capricornutum, 72h): 4.6 mg/L
EC₅₀ (Crustacea, 48h): 4.75 mg/L
NOEC (Ceriodaphnia dubia, 7 days): 1 mg/L
-Butyl acetate:
LC₅₀ (Danio rerio, 96h): 62 mg/L
-Toluene diisocyanate polymer:
LC₅₀ (Danio rerio, 96h): 3.914 mg/L mg/L
-Toluene diisocyanate:
EC₅₀ (Daphnia magna, 48h): 12.5 mg/L
-Ethylene glycol monoethyl ether acetate:
LC₅₀ (Pimephales promelas, 96h): 42.2 mg/L

Persistence and
degradability:

-

Bioaccumulative
potential:

It is not expected that the product presents bioaccumulative potencial in aquatic organisms.

Mobility in soil:

Not determined.

Other adverse effects:

There are not known other environmental effects for this product.

13 - DISPOSAL CONSIDERATIONS**Disposal methods**

Disposal of this product, solutions and any by-products should all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Keep the product remains in its original and properly closed containers. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid disposal or spilled material and runoff and contact with soil, waterways, drains and sewers.

14 - TRANSPORT INFORMATION

Road:

UN - "United Nations"

Recommendations on the TRANSPORT OF DANGEROUS GOODS. Model Regulations

UN number:

1263



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UN Proper Shipping Name:	PAINT
Transport hazard class(es):	3
Packing group:	II
Rail:	<i>Convention concerning International Carriage by Rail (COTIF) Appendix C - Regulations concerning the International Carriage of Dangerous Goods by Rail - RID</i>
UN number:	1263
UN Proper Shipping Name:	PAINT
Transport hazard class(es):	3
Packing group:	II
Sea:	<i>IMO - International Maritime Organization International Maritime Dangerous Goods Code (IMDG Code)</i>
UN number:	1263
UN proper shipping name:	PAINT
Transport hazard class(es):	3
Packing group:	II
Environmental hazards:	<i>The product is not considered a marine pollutant.</i>
EmS:	<u>F-E,S-E</u>
Air:	<i>IATA - International Air Transport Association Dangerous Goods Regulation (DGR)</i>
UN number:	1263
UN proper shipping name:	PAINT
Transport hazard class(es):	3
Packing group:	II
Special precautions for user:	There is no need of special precautions.
Transport in bulk according to MARPOL 73/78, Annex II, and the IBC Code:	Consult regulations: - International Maritime Organization. MARPOL: Articles, protocols, annexes, unified interpretations of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto, consolidated edition. IMO, London, 2006. - International Maritime Organization. IBC code: International code for the construction and equipment of shipping carrying dangerous chemicals in bulk: With Standards and guidelines relevant to the code. IMO, London, 2007.

15 - REGULATORY INFORMATION



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Convention concerning Safety in the use of Chemicals at Work (Convention 170) - International Labour Organization, 1990;

International Organization for Standardization - ISO 11014:2009.

TSCA: We certify that all the components of this product are listed on the TSCA Inventory.

DSL: We certify that all the components of this product are listed on the DSL.

Prop.65: ⚠ WARNING: This product can expose you to chemicals including Ethylbenzene, Toluene diisocyanate, which are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

Prop.65: ⚠ WARNING: This product can expose you to Ethylene glycol monoethyl ether acetate, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

16 - OTHER INFORMATION

This SDS was prepared based on current knowledge about the proper product handling and under normal conditions of use, in accordance with the application specified on the packaging. Any other use of the product involving their combination with other materials, and use various forms of those indicated, are the responsibility of the user. Warns that the handling of any chemical substance requires the prior knowledge of its hazards for the user. In the workplace it is for the user company's product promotes training of its collaborators about the possible risks arising from exposure to the chemical.

SDS elaborated in January 2019.

Change control:

Version	Publication Date	Changes
03	2019/01/24	Formula update

Hazard classification of chemical: Health: 2
Flammability: 3
Instability: 0

Classification system adopted: National Fire Protection Association: NFPA 704.

Hazard classification of chemical: Health: 2*
Flammability: 3
Physical Hazard: 0
Personal Protection: H

Classification system adopted: National Paint & Coatings Association: NPCA.



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NFPA 704:



HMIS:

HEALTH	*	2
FLAMMABILITY		3
PHYSICAL HAZARD		0
PERSONAL PROTECTION		H

Abbreviations:

ACGIH - *American Conference of Governmental Industrial Hygienists*
BEI - *Biological Exposure Index*
CAS - *Chemical Abstracts Service*
EC₅₀ - *Effective Concentration 50%*
IARC - *International Agency for Research on Cancer*
IDLH - *Immediately Dangerous to Life or Health*
LC₅₀ - *Lethal Concentration 50%*
LD₅₀ - *Lethal Dose 50%*
NIOSH - *National Institute for Occupational Safety and Health*
STEL - *Short Term Exposure Limit*
TLV - *Threshold Limit Value*
TWA - *Time Weighted Average*
VOC - *Volatile Organic Compound*

Bibliographic references:

Globally Harmonized System of Classification and Labelling of Chemicals (GHS). 6. rev. ed. New York: United Nations, 2015.