	MATERIAL SAFETY DATA SHEET OF CHEMICAL PRODUCT ISOAMYL ALCOHOL OR ISOPENTANOL	MSDS:	PET0002
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1. IDENTIFICATION

Product name:	ISOAMYL ALCOHOL OR ISOPENTANOL.
Internal product code:	N/A.
Recommended uses:	For industrial use in organic synthesis, solvents, fragrances, pharmaceuticals, plasticizers, etc.
Company name:	PETROM – Petroquímica Mogi das Cruzes S/A
Address:	Rodovia Dom Paulo Rolim Loureiro, km 09, Vila Moraes – CEP: 08766-500 – Mogi das Cruzes – SP – Brazil.
Contact phone:	+55 (11) 4798-7500/7600
Emergency phone:	+55 (11) 4798-7500
Fax:	+55 (11) 4798-7501/7610
Website:	http://www.petrom.com.br
E-mail	petrom@petrom.com.br

2. HAZARD IDENTIFICATION

Hazard classification according to ABNT - NBR 14725-2 in accordance with the GHS (Globally Harmonized System for Classification and Labelling of Chemicals, UN).

2.1 Classification of a substance or mixture

Hazard Classification:	Category
Flammable liquids	3
Acute toxicity - Oral	4
Acute toxicity - Dermal	5
Corrosion and skin irritation:	2
Severe ocular damage/eye irritation	1
Toxicity to specific target organs - Single exposure	3

2.2 Label elements of the GHS, including cautionary phrases



Pictograms:

Word of warning: **DANGER**


Hazard Phrases:

- H226** - Flammable liquids and vapors.
- H302** - Harmful if ingested.
- H313** - Can be harmful in contact with the skin.
- H315** - Causes irritation to skin.
- H318** - Causes severe ocular lesions.
- H335** - May cause irritation to the airways.

Cautionary Phrases:

Prevention:

- P210** - Keep away from heat/spark/open flame/hot surfaces. Do not smoke.
- P233** - Keep container hermetically closed.
- P240** - Ground the container vessel and the product receiver during transfers.
- P241** - Use explosion proof electrical equipment/ventilation/lighting.

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P242 - Only use anti-sparking tools.

P243 - Avoid accumulation of electrostatic charges.

P261 - Avoid inhaling dust/fume/gas/mist/vapor/aerosol.

P264 - Wash thoroughly after handling.

P270 - Do not eat, drink or smoke when using this product.

P271 - Only use outdoors or in well-ventilated areas.

P280 - Use protective gloves/protective clothing/eye protection/face protection.

Emergency Response:

P301 + P312 - IN CASE OF INGESTION: P312 - In case of indisposition, contact a TOXICOLOGICAL INFORMATION CENTER / doctor.

P302 + P352 + P338 - IN CASE OF CONTACT WITH SKIN: Wash with plenty of soap and water.

P303 + P361 + P353 - IN CASE OF CONTACT WITH SKIN (or with the hair): Immediately remove all contaminated clothing. Rinse skin with water/ take a shower.

P304 + P340 - IN CASE OF INHALATION: Remove the victim to a site open and ventilated, and keep at rest in a position not difficult to breathe.

P305 + P351 + P338 - IN CASE OF CONTACT WITH EYES: Rinse thoroughly with water for several minutes. In the case of use of contact lenses, remove them if it's easy to do so. Continue rinsing.

P310 - Contact immediately a TOXICOLOGICAL INFORMATION CENTER or a doctor.

P312 - In case of indisposition, contact a TOXICOLOGICAL INFORMATION CENTER / doctor.

P321 - Specific treatment (symptomatic)

P330 - Rinse the mouth.

P332 + P313 - In case of skin irritation: Consult a physician.

P362 + P364 - Remove all contaminated clothing and wash before using again.

P370 + P378 - In case of fire: For extinguishing use dry chemical powder, carbon dioxide, alcohol-resistant foam or water spray.

Storage:

P403 + P233 - Store in a well-ventilated place. Keep container hermetically closed.

P403 + P235 - Store in a well-ventilated place. Keep in a cool place.

P405 - Store in a locked room.

Disposal:

P501- Discard the content/container in appropriate locations for waste / final disposal (appropriate landfill accredited by competent bodies and/or with specialized companies for incineration or another destination in accordance with the municipal and state laws of the region).

2.3 Other hazards that do not result in a classification

There are no other hazards.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

ISOAMYL ALCOHOL is a SUBSTANCE.

3.1 Mixtures

Chemical name: **Isoamyl alcohol.**


CAS No.: **123-51-3**

REACH Number: **01-2119493725-26-0007**

Concentration Range: **>=99%**

Molecular Formula: **C₅H₁₂O**

Synonyms: **Isopentyl alcohol; 3-methyl-1-butanol.**

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Impurities that may contribute to the danger: 2-Methyl-1-butanol - CAS: 137-32-6 (20%)

4. FIRST AID MEASURES

First Aid Measures	Take the casualty to an aerated room. Remove contaminated clothing. Wash body parts affected with plenty of water. If the casualty is unconscious and not breathing anymore, perform artificial respiration or oxygenation. Take to the nearest medical service bringing this MSDS, the label and package leaflet of the product.
Inhalation	Remove the victim to a ventilated site, and keep her at rest in a position not difficult to breath. Place the victim down in a quiet place and protect against hypothermia. Monitor respiratory function. If the victim is breathing with difficulty, supply oxygen. If necessary apply artificial respiration. Seek medical assistance immediately, taking this MSDS, the label and package leaflet of the product.
Skin contact	Wash exposed skin with a sufficient quantity of water to remove material. In case of skin irritation: seek medical assistance immediately, taking this MSDS, the label and package leaflet of the product.
Eye contact	Rinse thoroughly with water for several minutes. In the case of use of contact lenses, remove them if it's easy to do so. Use preferably an eye washer. Seek medical assistance immediately, taking this MSDS, the label and package leaflet of the product.
Ingestion	Do not induce vomiting. Never give anything orally to an unconscious person. Seek medical assistance if necessary. To prevent aspiration of the product by ingestion, put the victim on her side with the head lower than the waist. Seek a doctor immediately taking this sheet, the packaging or label of the product.
Actions that should be avoided	Do not induce vomiting and do not administer anything orally if the person is unconscious.
Protection for first aid providers:	Avoid contact with the product while providing aid to the victim.

4.1 Symptoms and most important effects, acute or late


Harmful if ingested. May be harmful in contact with the skin. Causes irritation to the skin. Causes severe ocular lesions. May cause irritation to the airways. Irritation of the airways with cough and respiratory discomfort. Local redness and itching of the skin. Severe ocular lesions with local redness and/or tearing eyes. Repeated and/or prolonged exposure can cause severe symptoms.

4.2 Notes to physician

Treat according to the symptoms in clinical conditions. Avoid exposure to the product while providing aid to the victim. In case of contact with the skin, do not rub the affected region. Keep the victim under observation.

5. FIRE-FIGHTING MEASURES

Measures that must be taken to combat fire caused by the substance, or that occur in its surroundings.

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5.1 Extinguishing Methods

Appropriate	Use dry chemical powder, carbon dioxide, alcohol-resistant foam or water spray.
Not appropriate	Water jet extinguishers should be avoided in order not to cause spreading of the product to other regions.

5.2 Specific hazards of the substance or mixture

Special Procedures	Evacuate an 800-meter-radius area. Fire fight from a safe distance. Use levees to contain the water used in combat. Position yourself with your back to the wind. Use water mist to cool down equipment exposed in the vicinity of the fire.
Dangers arising from burning	Flammable liquids and vapors. Thermal decomposition form irritating and toxic gases such as carbon monoxide and carbon dioxide.

5.3 Measures for protection of the fire fighting team

Respiratory protective equipment of autonomous type (SCBA) with positive pressure and full protective clothing. Containers and tanks involved in the fire must be cooled with water jets.


6. CONTROL MEASURES FOR SPILL OR LEAK

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 - For the staff that is not part of emergency services	Do not touch damaged containers or spilled material without the use of appropriate clothing. Avoid inhalation and contact with eyes and skin. Use appropriate personal protective equipment as described in section 8. Respiratory protection must be performed depending on the concentrations present in the environment or the extension of the spillage/leakage, as such, opt for respirators with filter against vapors and mists. Do not handle broken packages, unless properly protected with the use of personal protective equipment. Do not touch or walk over spilled product. Move away any ignition sources. Do not smoke. Stay away from low-lying areas, having the wind on your back.
6.1.2 - For emergency services staff	<p><u>Personal precautions:</u> Use full PPE, with suitable protective clothing, goggles against splashing, closed shoes, nitrile rubber gloves or PVC or other waterproof material. Respiratory protection must be performed depending on the concentrations present in the environment or the extension of the spillage/leakage, as such, opt for respirators with filter against vapors and mists.</p> <p><u>Removal of ignition sources:</u> Interrupt the power supply and disconnect sources of sparks. Remove from the site any material that may start a fire (ex.: diesel oil spill).</p> <p><u>Dust Control:</u> Not applicable as it is a liquid.</p> <p><u>Prevention of inhalation and contact with the skin, mucous membranes and eyes:</u> Use clothes and accessories as described above. Use eye protection.</p>

6.2 Precautions to the environment

Special Procedures	Do not allow it to reach pipes or waterways. In case of pollution of rivers, lakes, or drainage for sewage, contact competent authorities in accordance with local laws.
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6.3 Methods and materials for containment of cleaning

Methods for cleaning	<p><u>Paved Floor:</u> Use water mist or vapor suppressant foam to reduce the dispersion of vapors. Use natural barriers or containment of spillage. Collect spilled product and place in appropriate containers. Adsorb the remaining product, with dry sand, soil, vermiculite or other inert material. Place the adsorbed material in appropriate containers and remove them to a safe place. Soil: Remove the layers of contaminated soil until uncontaminated soil is reached, collect this material and place in a sealed container properly labeled; Water bodies Immediately stop collection for human or animal consumption, contact the nearest environmental agency and the emergency center of the company, as the measures to be adopted depend on the proportion of the accident, the characteristics of the water resource in question and the quantity of the product involved. For final disposal, proceed according to Section 13 of this MSDS.</p>
Prevention of secondary hazards	Do not dispose directly into the environment or into the sewer network. The diluted water originated from firefighting may cause pollution.
Procedures	Isolate a 50-meter-radius area (liquid products), at minimum, in all directions. Use PPE. Remove ignition sources. Contain the spill. Collect in containers for disposal. Avoid contamination of water courses.
Methods	Do not use empty packaging.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling:

Guidelines for safe handling	Use the product following the recommendations of the manufacturer. Use PPE as described in Item 8. Avoid contact with skin, eyes and clothing. Keep people, especially children and pets away from the area of work. Do not come into direct contact with product. Keep product in its original container. Keep any leftovers of products in their original packages properly closed. Handle the product with appropriate local exhaust ventilation or in a well ventilated area, in open ambients, handle it downwind. In the case of intoxication symptoms, stop work immediately and proceed as described in item 4 of this sheet.
Exposure prevention for workers	Handle in a ventilated area or with general system of local ventilation/exhaust and in accordance with good industrial hygiene practices and security. Do not handle the product before having read and understood all safety precautions. Use appropriate personal protective equipment as described in section 8. Do not eat, drink or smoke when handling the product. Wash hands before eating, drinking, smoking or using the toilet. Upon opening the package do it so as to avoid spillage. Do not use individual protection equipment damaged and /or defective. Do not unclog nozzles, orifices, pipes and valves with the mouth. Do not manipulate and/or carry damaged packages. Keep the work place always clean.
Appropriate technical measures for the worker	<p><u>Appropriate</u> Wash contaminated clothing separately before reuse, avoiding contact with other utensils for personal use. Wash hands and face during breaks and at the end of working hours.</p> <p><u>Inappropriate:</u> Do not wash contaminated clothes together with other pieces of clothing or utensils for personal use.</p>

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7.2 Conditions for safe storage, including any incompatibilities

Appropriate Conditions	Store in a hermetically closed container in a dry, cool, well-ventilated place away from incompatible materials. Carefully close open containers and store in a vertical position to prevent leaks. Always keep in containers which correspond to the original packaging. Observe the indications contained on the label. Protect from direct action of the sun. Keep away from sources of ignition. Keep away from heat.
Conditions to avoid	Sources of heat and direct sunlight.
Prevention of fire and explosion	The product is considered flammable. Keep the product away from heat, sparks, open flames and other ignition sources.
Product and incompatible materials / other information	Do not store together with food, animal feed, medication, drinks intended for human consumption and for animals, chlorine, hydrogen peroxide, sulfuric acid, alkali metals, fluorine, strong oxidizing agents, oxygen, acetic aldehyde and peroxomonosulfuric acid.
Safe materials for packaging	<u>Recommended:</u> Product is already packed in appropriate packaging. Store in metal or polyethylene drums.

8. EXPOSURE CONTROL AND PERSONAL PROTECTION

8.1 Control parameters

Table N° 1 of Annex 11 (Chemical Agents) of NR 15 - Activities and Health Hazard Operations - of the MTe Decree N° 3214/78 - Brazil.

Exposure limits Occupational	Chemical agent	Skin absorption	ppm until 48h/week	mg/m3 until 48h/week	Degree of health hazard
		Isoamyl alcohol		78	280

Chemical name	Exposure Limit	Type	References
Isoamyl alcohol	100 ppm/ 125ppm	TLV / TWA	ACGIH
	100 ppm	PEL	OSHA
	100 ppm	REL/TWA	NIOSH


Biological indicators There are no biological indicators of exposure established by Brazilian legislation (NR 7).

8.2 Engineering control measures

Adequate The ventilation rate should be in accordance with the conditions. If applicable, use process protections, local exhaust ventilation or other engineering controls to keep the levels of material transported by air below the recommended exposure limits. It is mandatory to have facilities to wash out eyes and an emergency shower when handling this product.

8.3 Personal protective measures




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Respiratory protection:	Respirator with filter against vapors and mists.
<u>Hand protection:</u>	Safety gloves. The following materials are suitable as protective gloves: Polychloroprene; Nitrile rubber; Fluorocarbon rubber.
Eye protection:	Safety glasses with side protection against splashing.
Protection for skin and body:	Suitable protective clothing and closed shoes.
Thermal Hazards:	Does not present thermal hazards.
Special Precautions:	Keep PPE properly cleaned and under appropriate use conditions, performing periodic inspections and possible maintenance and/or replacement of damaged equipment.
Hygiene measures:	Wash contaminated clothing separately, avoiding contact with other utensils for personal use.
<u>Collective urgent measures:</u>	Emergency shower and eye washer.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid.
Form	Not available
Color	Colorless to yellowish.
Odor and odor threshold:	Characteristic. Odor threshold: 25 mg/m ³
Molecular weight	Not available
pH	Not available
Melting Point / Freezing point:	-117°C.
Initial boiling point and boiling temperature range:	132°C.
Flash Point	45°C (closed vessel); 55°C (open vessel).
Rate of evaporation	Not available
Flammability	Flammable.
Lower/Upper limit of flammability or explosivity:	Lower: 1.2% / Upper: 9%
Vapor density	3.04.

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Relative density:	0.8 (water = 1).
Vapor Pressure	0.283 kPa at 20°C.
Solubility	Partially soluble in water (25 g/L in water at 25°C); very soluble in acetone; miscible in alcohol, ether, benzene, chloroform and glacial acetic acid.
Partition coefficient - n-octanol/water	LogKow: 1.42.
Autoignition temperature:	350°C.
Decomposition temperature	Not available
Viscosity	3.738 cP at 25°C.
Surface tension	Not available
Corrosiveness	Not available
Other information	Combustion heat: - 794.98 kcal/mol.

10. STABILITY AND REACTIVITY

10.1 Reactivity

There are no hazardous reactions known.

10.2 Chemical Stability

Stable under normal conditions of handling and storage. Does not undergo polymerization.

10.3 Possibility of hazardous reactions

Risk of explosion in contact with chlorine, hydrogen peroxide and sulfuric acid. The substance can react dangerously with alkali metals, fluorine, strong oxidizing agents, oxygen, acetic aldehyde and peroxomonosulfuric acid.

10.4 Conditions to avoid

High temperatures and contact with incompatible materials. Avoid direct contact with sunlight.

10.5 Incompatible materials


Chlorine, hydrogen peroxide, sulfuric acid, alkali metals, fluorine, strong oxidizing agents, oxygen, acetic aldehyde and peroxomonosulfuric acid.

10.6 Hazardous decomposition products

Thermal decomposition form irritating and toxic gases such as carbon monoxide and carbon dioxide.

11. TOXICOLOGICAL INFORMATION

Acute toxicity:	<u>LD50 Oral in rats:</u> 1300 mg/Kg.
	<u>LD50 Dermal in rats:</u> 3210 mg/Kg.
	<u>LC50 Inhalation in rats:</u> Not available

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Corrosion and skin irritation:	Causes irritation to the skin with the possibility of developing symptoms, such as local redness and itching.
Severe ocular lesions /eye irritation:	Causes severe ocular lesions with possibility to develop symptoms, such as redness and/or tearing.
Respiratory sensitization or to the skin:	It is not expected that the product causes respiratory sensitisation or to skin.
Chronic toxicity:	<u>Carcinogenicity:</u> It is not expected that the product presents carcinogenicity. <u>Mutagenicity:</u> It is not expected that the product presents mutagenicity in germ cells. <u>Effects on reproduction:</u> It is not expected that the product presents toxicity for reproduction.
Systemic toxicity to target organ:	<u>Single exposure:</u> May cause irritation to the airways. <u>Repeated exposure:</u> It is not expected that the product presents damage to components through repeated or prolonged exposure.
Aspiration hazard:	It is not expected that the product presents aspiration hazard.

12. ECOLOGICAL INFORMATION

12.1 Ecotoxicity

Toxicity to aquatic organisms:	<u>LC50 Fish (<i>Danio rerio</i>) (96h):</u> >120 mg/L.
	<u>LC50 Fish (<i>Oncorhynchus mykiss</i>) (96h):</u> 700 mg/L.
	<u>EC50 Microcrustaceans (<i>Daphnia magna</i>) (48h):</u> 255 mg/L.
	<u>EC50 Algae (<i>Desmodesmus subspicatus</i>) (72h):</u> >500 mg/L.
Toxicity to other organisms:	LC50 Birds: N/A.
	LC50 Bees: N/A.
	LC50 Earthworms: N/A.
Main effects:	The product is not classified as dangerous for aquatic organisms.

12.2 Persistence and degradability


93% in 28 days.

12.3 Bioaccumulative potential

It is expected low potential for bioaccumulation. Log Kow: 1.42. BCF: 4.053.

12.4 Mobility in soil

High mobility in soil is expected.

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12.5 Other adverse effects

There are no known other environmental effects for this product.

13. COMMENTS ON FINAL DISPOSAL

13.1 Recommended methods for final disposal

Product/Leftover of the product: It must be disposed of as hazardous waste according to local legislation. Treatment and disposal should be evaluated specifically for each product. Federal, state and municipal laws should be consulted, among them: CONAMA Resolution 005/1993, Law no. 12,305, 02 August 2010 (National Solid Waste Policy) - Brazil. Keep leftovers of the product in its original packaging and properly closed. Disposal must be carried out according to the established for the product. Keep the remnants of the product in its original packaging and closed, in accordance with local laws.

Used packaging: Used containers should be emptied in the best possible way and be disposed of according to the dangerousness of the content. Never reuse empty packaging, as they may contain residues of the product and must be kept closed and forwarded to an appropriate location according to local legislation.

14. TRANSPORTATION INFORMATION

National and international regulations:

Land classification (railroads, highways) pursuant to National Land Transportation Agency: (ANTT):


- UN Number: 1105
- Name for shipment: PENTANOLS
- Main Risk Class/Subclass: 3
- Subsidiary Risk Class/Subclass: none
- Risk Number: 30
- Packing Group: III
- Special Provision: 223
- Quantity Exemption for Transportation:
 - Vehicle: 1000 kg.
 - Internal Packaging: 5 L.
- Danger to the environment: Not available

Waterway classification (maritime, fluvial, lacustrine) pursuant to Maritime International Dangerous Goods (IMDG) and National Water Transportation Agency (ANTAQ):

- UN Number: 1105
- Name for shipment: PENTANOLS
- Main Risk Class/Subclass: 3
- Subsidiary Risk Class/Subclass: none
- Risk Number: 30
- Packing Group: III
- Marine pollutant: NO.
- EmS: F-E - S-D
- Danger to the environment: Not available.

Airspace classification pursuant to International Aviation Organization - Technical Instructions (ICAO-TI) and National Civil Aviation Agency (ANAC):

- UN Number: 1105
- Name for shipment: PENTANOLS

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- Main Risk Class/Subclass: 3
- Subsidiary Risk Class/Subclass: none
- Risk Number: 30
- Packing Group: III
- Danger to the environment: Not available

Reminders:

-SAFETY DATA SHEET FOR TRANSPORTATION It is mandatory for this product the preparation of the Safety Data Sheet, according to NBR 7503-ABNT with lateral red stripe (Product Classified as dangerous for transportation).

-CHEMICAL INCOMPATIBILITY OF THIS PRODUCT FOR TRANSPORTATION: (*)This substance/product is incompatible with the substances and articles of class 1 (explosives) and their respective subclasses; except for the products of the subclass 1.4 compatibility group S. incompatible with subclass 4.1+1 (self-reactive substances that contain the label of subsidiary risk of explosive) and with subclass 5.2 +1 (organic peroxides that contain the subsidiary risk of explosive).

(*) This information of Incompatibility must be placed in the ASPECT field of the Safety Data Sheet, according to the filling out requirements of the NBR 7503 - ABNT

Road Transportation of Hazardous Products-Brazil Resolution 5.232-ANTT of Ministry of Transportation.

DOT (Department of Transportation)

IATA (International Air Transport Association, Dangerous Goods Regulations).

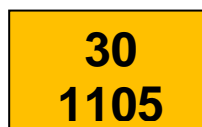
I.M.O / the IMDG (International Maritime Dangerous Goods Code).

IDENTIFICATION OF THE CARGO TRANSPORTATION UNIT

Notes: THIS IS THE IDENTIFICATION IF THE TRANSPORTATION / SHIPMENT IS ONLY FOR THIS PRODUCT/ SAME SHIPMENT DESCRIPTION.



MAIN RISK LABEL




SECURITY PANEL

REMINDER: In case of transportation of this product with other different products/shipment description, in the same cargo, consult with the ANTT (National Agency of Transportation) - Resolution in force on "Identification of cargo transportation units" and also with the ABNT (Brazilian Association of Technical Norms) - current NBR 7500 about identification for the transportation, handling, movement and storage of products", to carry out the correct signaling pursuant to the particularities.

DESCRIPTION/CORRECT SEQUENCE TO ISSUE INVOICE:

UN1105 PENTANÓIS (Isoamyl Alcohol), 3, III

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DISPATCHER'S DECLARATION REQUIRED TO BE PRINTED ON THE INVOICE:

"I declare that hazardous products are properly classified, packaged, marked, and stowed to withstand the risks of transportation operations and that meet the requirements of the regulation".

Ministry of Transportation-MT- Regulation of Transportation of Dangerous Products - RTPP

Note- The Regulations referred above are those which are in force on the day of updating this MSDS. Considering the continuous evolution of regulations for transportation of dangerous products, it is advisable to ensure the validity of the same with the competent responsible bodies.

15. INFORMATION ABOUT REGULATIONS

National regulations:

Decree Law no. 2,657 - July 3, 1998 - MTE (Ministry of Labor and Employment).

Decree No. 229 of 24 May 2011 - Amending the Regulatory Norm no. 26.

Decree no. 7,404, of 23 December 2010.

Law no. 12,305, 02 August 2010 (National Solid Waste Policy).

NBR 14725 (Part 4) - MATERIAL SAFETY DATA SHEET - MSDS, and its other parts (Part 1-Terminology, Part 2- Hazard Classification and Part 3- Labelling) - ABNT (Brazilian Association of Technical Norms).

GHS Criteria- Globally Harmonized System of labelling and risk classification for chemicals - published by the UN (United Nations), which like other countries, Brazil is a signatory.

Regulation of the Transportation of Dangerous Goods - RTPP - as Decree 96,044 of May18, 1988 and Decree 98,973 of February, 21 1,990 and its complementary instructions in Resolution 5,232 of December 14, 2016.

NBR 7503- Transportation Emergency Card- ABNT (Brazilian Association of Technical Norms).

NBR 14619 - Chemical Incompatibilities- ABNT (Brazilian Association of Technical Norms).


NBR 7500- Identification for transportation, handling, movement and storage of dangerous products (Symbology and Signalling)- ABNT (Brazilian Association of Technical Norms).

16. OTHER INFORMATION

Recommended use- Follow all recommendations of use, storage, and disposal indicated by the manufacturer/registrant and described on the packaging, product package insert and cited in Section 1 of this MSDS.

Important Legal Notice Important- The data and information contained herein is provided in good faith and represent the best current knowledge about the matter, and are based from data supplied by the registrant company, manufacturer or importer of this product, available at the moment, however do not completely exhaust the subject. No warranty is given about the result of the application of such data and information, not absolving users/receivers /workers/employers of their responsibilities, at any stage of the handling, storage, processing, packaging and distribution of this material/product. Prevail over the data contained herein the provisions in the legislation, regulations and standards in force. The registrant assumes no liability for any losses, damages, or expenses related to the handling, storage, use or disposal of the product, repair of damages or compensation of any kind.

Be warned that the handling of any chemical substance requires prior knowledge of its dangers by the user. The

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company using the product should promote the training of its employees and contractors regarding the possible risks coming from the product.

This MSDS has been revised by Sudeste Online pursuant to Brazilian standards (ABNT NBR 14725). This document is mandatory and provides information on various aspects of this material /chemical product regarding risks, handling, storage, emergency actions, protection, safety, health and to the environment, the supplier of this material/product to the user/receiver/workers.

Glossary:

ACGIH – American Conference of Governmental Industrial Hygienists;

BCF - Bioconcentration Factor

GHS – Globally Harmonized System

CAS - *Chemical Abstracts Service*

LC50 – Lethal concentration 50%

LD50 – Lethal dose 50%

EC50 - Effective concentration

NFPA - *National Fire Protection Association*

PPE - Personal Protection Equipment

N/A – Not applicable;

N/A - Not available;

UN - The United Nations;

OSHA - *Occupational Safety and Health Administration;*

PEL -Permissible Exposure Limits;

REL - Recommended Exposure Limits;

TLV - *Threshold limit value;*

TWA – *Time Weighted Average.*

NBR - Brazilian Standard

ABNT - Brazilian Technical Standards

EPA – *Environmental Protection Agency*