	MATERIAL SAFETY DATA SHEET OF CHEMICAL PRODUCT PLS GREEN 5	MSDS:	PET0004
		Revision:	6
		Date:	6/28/2018
		Page:	1 of 10

1. IDENTIFICATION

Product name:	PLS GREEN 5.
Internal product code:	N/A.
Recommended uses:	It is used widely in the production of PVC compounds for injection, extrusion, spread coating, etc. Can also be used in compounds based on vinyl polyester, acrylic resins, alkyd resins, nitrocellulose, rubber, nitrile rubber, varnishes, glues, paints, emulsion, impregnating products for textiles and paper.
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:

THE PRODUCT IS NOT CLASSIFIED AS DANGEROUS ACCORDING TO CRITERIA ESTABLISHED BY ABNT NBR 14725-2.

2.2 Label elements of the GHS, including cautionary phrases

Pictograms: NOT REQUIRED

Word of warning: NOT REQUIRED

Hazard Phrases: NOT REQUIRED

Cautionary Phrases:

Prevention:
Not required.

Emergency Response:
Not required.

Storage:
Not required.


Disposal:
Not required.

2.3 Other hazards that do not result in a classification

There are no other hazards.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

PLS GREEN 5 is a SUBSTANCE.

	MATERIAL SAFETY DATA SHEET OF CHEMICAL PRODUCT PLS GREEN 5	MSDS:	PET0004
		Revision:	6
		Date:	6/28/2018
		Page:	2 of 10

3.1 Substances

Chemical name: **Fatty acids, epoxidized vegetable oils, esters of isopentyl.**
CAS No.: **1394959-45-5**
Concentration Range: -----
Molecular Formula: -----
Synonyms: Alkyl esters of epoxidized fatty acids of vegetable oils.

Impurities that may contribute to the danger:

Does not show impurities that may contribute to danger.

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

No known symptom.

4.2 Notes to physician

Treat according to the symptoms in clinical conditions. Keep the victim under observation.

	MATERIAL SAFETY DATA SHEET OF CHEMICAL PRODUCT PLS GREEN 5	MSDS:	PET0004
		Revision:	6
		Date:	6/28/2018
		Page:	3 of 10

5. FIRE-FIGHTING MEASURES

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

5.1 Extinguishing Methods

Appropriate	Use dry chemical powder, carbon dioxide, or chemical foam.
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	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	<p>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.</p> <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>
6.1.2 - For emergency services staff	<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>

	MATERIAL SAFETY DATA SHEET OF CHEMICAL PRODUCT PLS GREEN 5	MSDS:	PET0004
		Revision:	6
		Date:	6/28/2018
		Page:	4 of 10

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.

6.3 Methods and materials for containment of cleaning

Methods for cleaning Paved Floor: 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 upon 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.

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 using your mouth. Do not manipulate and/or carry damaged packages. Keep the work place always clean.

Appropriate technical measures for the worker Appropriate 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.

	MATERIAL SAFETY DATA SHEET OF CHEMICAL PRODUCT PLS GREEN 5	MSDS:	PET0004
		Revision:	6
		Date:	6/28/2018
		Page:	5 of 10

Inappropriate: Do not wash contaminated clothes together with other pieces of clothing or utensils for personal use.

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

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, drugs, drinks intended for human consumption, and of animals and incompatible materials, such as: oxidizing agents, strong acid solutions and strong alkaline solutions.

Safe materials for packaging

Recommended: Product is already packed in appropriate packaging. Store in metal or polyethylene drums.

8. EXPOSURE CONTROL AND PERSONAL PROTECTION

8.1 Control parameters

Exposure limits Occupational

Chemical name	Exposure Limit	Type	References
Fatty acids, epoxidized vegetable oils, esters of isopentyl	Not established	--	NR15

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




Respiratory protection:

Respirator with filter against vapors and mists.

Hand protection:


Safety nitrile rubber or PVC gloves.

	MATERIAL SAFETY DATA SHEET OF CHEMICAL PRODUCT PLS GREEN 5	MSDS:	PET0004
		Revision:	6
		Date:	6/28/2018
		Page:	6 of 10

Eye protection:	Safety glasses with side protection against splashing.
Protection for skin and body:	Suitable protective clothing and closed shoes. The material used must be waterproof.
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	Light yellow.
Odor and odor threshold:	Characteristic.
Molecular weight	Not available.
pH	Not available.
Melting Point / Freezing point:	Not available.
Initial boiling point and boiling temperature range:	Not available.
Flash Point	204°C (closed vessel);
Rate of evaporation	0.2% max.
Flammability	Not flammable.
Lower/Upper limit of flammability or explosivity:	Not applicable. Product is not explosive.
Vapor density	Not available.
Relative density:	0.932 (20°C).
Vapor Pressure	Very low.
Solubility	Insoluble in water.
Partition coefficient - n-octanol/water	Not available.

	MATERIAL SAFETY DATA SHEET OF CHEMICAL PRODUCT PLS GREEN 5	MSDS:	PET0004
		Revision:	6
		Date:	6/28/2018
		Page:	7 of 10

Autoignition temperature: Not available.

Decomposition temperature: Not available.

Viscosity: 31 cP (20°C).

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.

10.3 Possibility of hazardous reactions

Polymerization can occur if the product comes into contact with strong mineral acids.

10.4 Conditions to avoid

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

10.5 Incompatible materials

Incompatible with oxidizing agents, strong acid solutions and strong alkaline solutions.

10.6 Hazardous decomposition products

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

11. TOXICOLOGICAL INFORMATION

Acute toxicity: LD50 Oral in rats: 22400 mg/Kg.
LD50 Dermal in rabbits: 19900 mg/Kg.
LC50 Inhalation in rats: Not available.


Corrosion and skin irritation: May cause mild skin irritation.

Severe ocular lesions /eye irritation: May cause mild irritation of the eyes.

Respiratory sensitization or to the skin: It is not expected that the product causes respiratory sensitisation or to skin.

Chronic toxicity: Carcinogenicity:
It is not expected that the product presents carcinogenicity.
Mutagenicity:
It is not expected that the product presents mutagenicity in germ cells.
Effects on reproduction:
It is not expected that the product presents toxicity for reproduction.

Systemic toxicity to target organ: Single exposure:
It is not expected that the product presents damage to organs through single exposure.

	MATERIAL SAFETY DATA SHEET OF CHEMICAL PRODUCT PLS GREEN 5	MSDS:	PET0004
		Revision:	6
		Date:	6/28/2018
		Page:	8 of 10

Repeated exposure:

It is not expected that the product presents damage to organs 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: LC50 Fish: Not available.
EC50 Microcrustaceans: : Not available.
EC50 Algae: : Not available.

Toxicity to other organisms: LC50 Birds: N/A.
LC50 Bees: N/A.
LC50 Earthworms: N/A.

Main effects: It is not expected that the product presents danger to aquatic organisms.

12.2 Persistence and degradability

It is expected rapid degradation and low persistence.

12.3 Bioaccumulative potential

It is expected low potential for bioaccumulation based on estimated BCF.

12.4 Mobility in soil

Low mobility in soil.

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). 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.

	MATERIAL SAFETY DATA SHEET OF CHEMICAL PRODUCT PLS GREEN 5	MSDS:	PET0004
		Revision:	6
		Date:	6/28/2018
		Page:	9 of 10

14. TRANSPORTATION INFORMATION

National and international regulations:

DOT Classification: (Inland Transportation):

- PRODUCT DOES NOT FIT IN THE RESOLUTION IN FORCE ON THE TRANSPORTATION OF HAZARDOUS GOODS.

IATA Classification: (Air Transport):

- PRODUCT DOES NOT FIT IN THE RESOLUTION IN FORCE ON THE TRANSPORTATION OF HAZARDOUS GOODS.

I.M.O. Classification: (Maritime Transport):

- PRODUCT DOES NOT FIT IN THE RESOLUTION IN FORCE ON THE TRANSPORTATION OF HAZARDOUS GOODS.

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).

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.

	MATERIAL SAFETY DATA SHEET OF CHEMICAL PRODUCT PLS GREEN 5	MSDS:	PET0004
		Revision:	6
		Date:	6/28/2018
		Page:	10 of 10

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 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*