

SAFETY DATA SHEET**Product:** ECOGEL®

Version: 12

Date: 10/06/2021

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SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Identification of the product	ECOGEL® - High impact polystyrene - PS HIPS and post-consumption Polystyrene (PCR).
Product code	ECO8878 / ECO8875/ EcoU285g.
Recommended uses	Resin of the group of the thermoplastics, whose characteristic is in its easy flexibility the moldability under the action of heat, by means of extrusion processes, injection or thermoforming. Unigel does not recommend the use of the ECOGEL line for packages that come into contact with food, drugs, toys, parenteral solutions or that will have any type of internal contact with the human body.
Restrictions on use	Not recommended for other uses.
Company	Companhia Brasileira de Estireno.
Address	Avenida Santos Dumont, 4444 – Jd. Conceiçãozinha - Guarujá – SP, Brazil.
Telephone number	55 (13) 3328-6455
Company	Companhia Brasileira de Estireno.
Address	Rua Carlos Marcondes, 1200 – Jd. Limoeiro – São José dos Campos – SP, Brazil.
Telephone number	55 (12) 3203-5770.
Emergency telephone number	0800 110 8270 Pró-Química

SECTION 2: HAZARDS IDENTIFICATION

Most important hazards	Product not classified as dangerous by the Classification System used.
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Product effects

Adverse effects to the human health	During processing, the molten polymer in contact with the eyes can cause burns, as the vapors formed can cause irritation. Molten polymer can cause skin burns. Molten polymer can release vapors during
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	processing, which when too much inhaled can cause irritation of the respiratory system and mucous membranes.
Environmental effects	It is not expected that product presents environmental effects.
Physical and chemical hazards	It is not expected that product presents physical and chemical hazards.
Chemical product-specific hazards	It is not expected that product presents specific hazards.
Important symptoms	During processing, the molten polymer in contact with the eyes can cause burns, as the vapors formed can cause irritation. Molten polymer can cause skin burns. Molten polymer can release vapors during processing, which when too much inhaled can cause irritation of the respiratory system and mucous membranes.
Classification of the chemical product	Product not classified as dangerous by the Classification System used.
Classification system adopted	Globally Harmonized System of Classification and Labeling of Chemicals (GHS), United Nations, 2019.
Adequate labeling elements	
Pictograms	Not applicable.
Signal word	Not applicable.
Hazard statement(s)	Not applicable.
Precautionary statement(s)	Wash your hands after handling the product. Do not drink, eat or smoke when handling the product. It is recommended to use suitable PPE's when handling the product. Obtain product information before handling. Store the product in a suitable place. In case of emergency, proceed as indicated by the SDS. Solid fuel. Product flow can generate static charges, which can result in sparks. It is recommended that grounding systems be used during downloads and transfers.
Outline of an anticipated emergency	NON-HAZARDOUS SOLID.

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SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**MIXTURE**

Ingredients and impurities contributing to the hazard

Components	Concentration	N° CAS
High impact polystyrene	70%	9003-55-8
Crystal polystyrene	30%	9003-53-6

SECTION 4: FIRST-AID MEASURES**Exposure routes**

Inhalation	Remove the victim to a ventilated place.
Skin contact	Wash exposed skin with sufficient water to remove the material.
Eye contact:	Rinse thoroughly with water for several minutes. If using contact lenses, remove them if it is easy. If eye irritation persists consult a doctor. Take this SDS.
Ingestion	No effect is expected from ingestion of small amounts. Ingestion is very unlikely due to the form of pellets (grains). If the victim is conscious, rinse the mouth with plenty of clean water and if vomiting occurs, keep the victim's head to the side to avoid aspiration. Seek medical attention immediately.
Anticipated acute effects and/or anticipated delayed effects	Contact with molten product can cause burns to the skin and eyes. Fumes from molten polymer may cause eye and respiratory irritation.
Protection of first aiders and/or special notes to a physician	Avoid contact with the product when helping the victim. Exposure treatment should be directed at controlling the symptoms and the clinical condition of the patient. In case of skin contact, do not rub the affected area. Molten polymer can cause burns and adhere to skin. Do not try to remove the burned polymer, as it can make the burn worse. Cool the affected area with ice and water. A doctor must remove the plastic and treat the burn.

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SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing media	Suitable: Water mist, dry powder, synthetic foams and carbon dioxide (CO ₂). Not recommended: direct water jets.
Specific hazards arising from the chemical product	The combustion of the chemical products or containers may form toxic and irritating gases such as carbon monoxide (CO), carbon dioxide (CO ₂) and monomer vapors.
Specific extinguishing methods	Keep people away and isolate the risk area. If the material is molten, do not apply water in a solid stream. Use water with mist or foam. Cool adjoining areas to locate fire zone. Manual carbon dioxide or dry chemical fire extinguishers can be used for small fires.
Special equipment for the protection of firefighters	Self-contained breathing apparatus (SCBA) operated in positive pressure mode and complete protective clothing.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions	Do not smoke. Avoid contact with the product. If necessary, use personal protective equipment as described in section 8.
Protective equipment:	Use protective equipment as described in Section 8.
Emergency procedures	Wear complete PPE, with glasses with side protection, suitable protective gloves, closed shoes, and safety clothing to protect the body. Protective mask with dust filter, if necessary.
Environmental precautions	Prevent the product from reaching the soil and water courses. Notify the relevant authorities if the product has caused environmental pollution (if it has reached water courses or if it has contaminated the soil or vegetation).
Methods and materials for containment	Containment techniques may include bunding, covering of drains and capping procedures.
Methods and materials for cleaning up	Collect the product with a clean shovel or other instrument that does not disperse the product. Put material in suitable containers and remove them to a safe place. For disposal, proceed according to Section 13 of this SDS.

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Secondary disaster prevention measures	Do not dispose directly into the environment or into the sewage system. The products resulting from fire control may cause pollution.
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SECTION 7: HANDLING AND STORAGE**Handling**

Precautions for safe handling	Avoid sources of ignition in the places where the product is handled. Handle in a ventilated area or with a general local exhaust / ventilation system. Avoid dust formation and product exposure. Wear personal protective equipment as described in section 8. Do not allow molten material to come into contact with your eyes, skin, or clothing.
Technical measures for prevention of exposure of the handler	Use personal protective equipment as described in Section 8.
Technical measures for prevention of fire and explosion	Keep away from sources of ignition. Static charge build-up should be avoided during pneumatic charging and other mechanical handling operations as they can generate combustible dust. Keep the equipment properly grounded.
Suitable precautions	Contaminated clothing should be changed and washed before reuse. Remove clothing and protective equipment contaminated before entering eating areas.
Prevention of contact	Wash hands and face thoroughly after handling and before eating, drinking, smoking, or going to the bathroom.

Storage

Conditions for safe storage	Store the product in a tightly closed container and in a dry, well-ventilated place. To maintain the quality of the product, do not store it in the heat or in direct sunlight.
Technical measures	Keep away from high temperatures and incompatible materials.
Incompatible substances and mixtures	Oxidizing agents.

Packaging materials

Recommended material	Similar to the original packaging.
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Unsuitable material

We do not recommend stacking the “Big Bag” (1250 kg package), due to the risk of tipping over, which can cause accidents.

SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION**Permissible concentration**

Occupational exposure limit Not established.

Biological limit Not established.

Engineering controls
measures

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

The product contains small amounts of chemical monomers and process residues, along with possible decomposition products that can arise during thermal processes. Since the identity and content of these components depend on the processing conditions, it is the responsibility of the user to determine the appropriate protection or security measures.

Appropriate personal protective equipment

Respiratory protection

In case of dust formation, use respiratory protection equipment against dust - P2. Based on the inhalation hazard of the product, a risk assessment must be carried out to adequately define respiratory protection in view of the conditions of use of the product.

Hand protection

Wear protective gloves, in case of polymer melting processes, wear gloves with thermal protection.

Eye protection

Wear safety glasses. Wear goggles if there is a possibility of exposure to particles that can cause discomfort to the eyes.

Skin and body protection

Suitable safety clothing and closed shoes.

Special precautions

In the case of polymer casting, it is recommended to use thermal protection and care during handling as the product is slippery and can run and scatter on the floor.

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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Solid, grainy with different color.
Odour	Low to odorless.
pH	Not applicable.
Melting point/freezing point	Not available.
Boiling point, initial boiling, and boiling range	Not available.
Flashpoint	> 385°C.
Upper/lower flammability or explosive limits	Non flammable.
Vapour pressure	Not available.
Vapour density	Not available.
Relative density	0.65 g/cm ³ .
Solubility(ies)	Soluble in aromatic hydrocarbon solvents.
n-octanol/water partition coefficient	Not available.
Auto-ignition temperature	> 435°C.
Decomposition temperature	> 300°C.
Odour threshold	Not available.
Evaporation rate	Not available.
Flammability	Not available.
Viscosity	Not available.
Other information	Softening Temperature: > 90°C. Bulk density: 0.65 g/cm ³ .

SECTION 10: STABILITY AND REACTIVITY

Chemical stability	Product is stable under normal conditions of temperature and
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	pressure.
Hazardous reactions	Avoiding the accumulation of dust from the decomposition products formed, and in certain concentrations in the air, it can become explosive.
Conditions to avoid	High temperatures (above 300 ° C), heat, friction and contact with incompatible materials.
Incompatible materials	Oxidizing agents.
Hazardous decomposition products	<p>Polymer decomposes under fire conditions. The vapors can contain fragments of the polymer of variable composition, in addition to toxic and / or irritating compounds.</p> <p>The processing of the polymer can generate smoke that can contain polymer fragments and other decomposition products, in addition, mechanical handling can cause the formation of dust (risk of explosion).</p>

SECTION 11: TOXICOLOGICAL INFORMATION

Acute toxicity	The product is not expected to be toxic to the oral, dermal and inhalation routes.
Skin irritation/corrosion	The product is not expected to cause skin irritation (in polymer form). In cases of polymer casting, contact can cause skin burns.
Eye damage/irritation	The product is not expected to cause eye irritation (in polymer form). In case of melting of the polymer, contact can cause burns to the eyes.
Respiratory or skin sensitization	It is not expected that the product causes respiratory or skin sensitization.
Reproductive cell mutagenicity	It is not expected that the product presents reproductive cell mutagenicity.
Carcinogenicity	It is not expected that the product is not expected to cause cancer.
Reproductive toxicity	It is not expected that the product presents reproductive toxicity.
Specific target organ toxicity	In polymer form, inhalation of the product can cause respiratory

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– single exposure	irritation with coughing and sneezing by mechanical action. In the case of polymer fusion, vapors are released, causing respiratory and mucous membrane irritation.
Specific target organ toxicity – repeated exposure	It is not expected that the product presents specific target organ toxicity by repeated exposure.
Aspiration hazard	It is not expected that the product presents aspiration hazard.
Toxicokinetics, metabolism and distribution	No information is described on the toxicokinetics and metabolism of this product.

SECTION 12: ECOLOGICAL INFORMATION**Environmental effects, behavior, and fate of the product**

Ecotoxicity	It is not expected that the product presents ecotoxicity.
Persistence and degradability	Due to the lack of data, it is expected that the product presents persistence, and it is not considered readily biodegradable.
Bioaccumulative potential	The product is expected to have no bioaccumulative potential.
Mobility in soil	Not determined.
Other adverse effects	There are not known adverse environmental effects of the product.

SECTION 13: DISPOSAL CONSIDERATIONS

Methods of disposal to the chemical product, product waste and/or contaminated container and/or packaging	Must be disposed of as hazardous waste in compliance with local regulations. The treatment and disposal should be evaluated for each specific product. Keep the product remains in its original and properly closed. Disposal should be performed as established for the product. Do not reuse empty containers. These may contain product residues and should be kept closed and sent for proper disposal as established for the product.
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SECTION 14: TRANSPORT INFORMATION**International regulations**

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Land	UN – “United Nations” Recommendations on the TRANSPORT OF DANGEROUS GOODS. Model Regulations
Sea	IMO – International Maritime Organization International Maritime Dangerous Goods Code (IMDG Code)
Air	IATA – International Air Transport Association Dangerous Goods Regulation (DGR)
UN number	Not classified as hazardous to transport.
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.
Special precautions	There is no need of special precautions.

SECTION 15: REGULATORY INFORMATION

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

International Organization for Standardization - ISO 11014:2009.

SECTION 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

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chemical.

SDS elaborated in october 2021.

Abbreviations:

CAS – Chemical Abstracts Service

UN – United Nations

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