1. Product and Company Identification

- - Name of Product: Medium Density Polyethylene
- - Product Code: HF0131
- - Company: Quattor Química S.A.
- - Address: Av. Pres. Costa e Silva - 400 - Parque Capuava, CEP 09270-900, Santo André, SP - Brazil
- - Phone: 55 11 4478-4000
- - Phone for emergencies: : 55 11 4478-4000

- Fax: 55 11 4478-4004

2. Composition of and Information Regarding the Ingredients

- Chemical or Generic name: polyethylene copolymer 1-hexene.
- Chemical Abstract Service (nº CAS): 25213-02-9

3. Danger Identification

- The product only offers risks of decomposing itself when it has been exposed to temperatures of over 300ºC (572ºF), when it frees combustible gases such as CO2, and CO, as well as smoke, hydrocarbons, and the possibility of acrolein traces. In solid or powdered state it may cause irritation or lesions to the corneas of the eyes resulting from rubbing

4. First Aid Measures

- Inhaling: Avoid inhalation of dust. In case of inhalation remove the person to fresh air, rest.
- Contact with the skin: As a rule, it does not irritate the skin. Remove contaminated clothes. Rinse and then wash skin with water and soap.
- Contact with eyes: Safety goggles and in case of contact, first rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
- Swallowing: Do not eat or smoke during work.

5. Preventive Measures and Fire Fighting

- How to put out fires: In case of fire, the area should be isolated, and the smoke originating from the combustion should be expelled. Polyethylene, when under combustion, provokes Class A fires, which should be fought using water sprays, foam, dry chemical powder, CO2 (carbon dioxide) or halon.
- Special equipment for the protection of fire fighters: breathing devices operated by positive pressure should be used. People not having adequate respiratory protection should abandon the area to avoid significant exposure to combustion gases originating from any sources.

6. Control Measures for Spilling or Leakage

- Personal precautions: sources of ignition should be removed from contact with the resin resulting from spillage or leakage, even in spite of low risks of combustion, or spreading of the fire.
- Procedures to be adopted to protect the environment: stanch the leakage. Avoid drainage of the product into public sewers, ponds or water sources.
- Cleaning methods: take the product up by suction or sweep it to be repackaged, reused or discarded. Product wastes should be discarded in licensed dumps or incinerated pursuant to federal, state or local regulations. For the purpose of discarding wastage, Polyethylene resins have not been defined or designated as being dangerous, pursuant to NBR-10.004 (Classification of solid residues – ABNT, Brazilian Association of Technical Standards). If the product is incinerated, one should beware of the gasses generated.

7. Handling and Storage

- Handling: natural ventilation should suffice. No breathing apparatuses should be needed. It is recommended that protective gloves be used when the product is handled hot during processing. Safety glasses should be worn at all times. Dusting, as well as eating or drinking at the areas where the product is being handled should be avoided.
- Storage: The products should be kept away from sunlight. Storage next to concentrated acids, chlorinated solvents and aromatic compounds is not recommended. If the product is spilled, the floor should be cleaned as soon as possible, since the presence of granules makes the floor slippery.
- Maximum storage time is 18 months. For safety reasons, it is recommended that the resin be stored on wooden pallets, containing 54 bags on each pellet (1.350 ton) with stretch or shrink, to be moved with a stacking machine. The limit of two pallets, stacked one on top of the other, should be observed.
- Manner of Packing: the manner of packing does not present any material risks, except when there is the possibility of accumulating fine particles, in which case risk of an explosion exists.

8. Control against Exposure and Personal Protection

- Permissible Exposure Limits: 5 mg/m^3 OSHA TWA (respirable dust); 15 mg/m^3 OSHA TWA (total dust); 10 mg/m^3 ACGIH TWA (total dust).
- Engineering control measures or specific control parameters are not applicable regarding the substances or their components, such as occupational exposure limits and/or biologic indicators. There are no procedures recommended for monitoring.
- Breathing protection: None is needed.
- Eye protection: usage of safety glasses is recommended at all times.
- Skin protection: gloves are recommended to handle the material during processing due to the temperature needed for this procedure.
- Hygiene Measures: avoid eating or drinking in the areas where the product is being handled.

9. Physical-Chemical Properties

- Melt temperature: 125 to 135ºC
- Decomposition Temperature :>400^{o}C.
- Smell and appearance: pellets, solid, white and odorless.
- Self-ignition temperature: 341ºC
- Solubility: hot aromatic chlorinated solvents

10. Stability and Reactivity

- The polyethylene resins are stable. There is no decomposition of the polymer at room temperatures
- Incompatible materials or substances: the ethyl polymers, even if little reactive, may suffer degradation when in contact with certain chemical products, such as concentrated acids, chlorinated solvents or aromatic compounds. Changes in the molecular structure may occur when the product is subjected to severe heat and/or radiation conditions, which is the case of long exposure to sunlight.
- Hazardous products resulting from decomposition: The combustible components of Polyethylene resins, such as those resulting from other natural and synthetic products should be considered as being toxic. Like wood, paper and cotton, the greater risk arises from carbon monoxide, which is an asphyxiating product.

11. Toxicologic Information

- Polyethylene is non toxic. No specific effects causing cancer, mutation, congenial malformation, harm to fetus or toxicity to reproduction are known, as arising from its usage.
- The product is not harmful to the human organism.

12. Ecoloty-Related Information

- Polyethylene is non toxic, non polluting and non bio-degradable.
- No adverse effects are known resulting from persistence of use and bio-accumulation.

13. Treatment and Disposal Considerations

- Wastage disposal should be done in licensed dumps or incinerated, pursuant to federal, state and local regulations. For the purposes of waste disposal, Polyethylene resins have not been defined or designated as being hazardous, pursuant to NBR-10.004 (Classification of solid residues – ABNT Brazilian Association of Technical Standards). When incinerated, one should beware of the gasses generated.

14. Information Regarding Shipping

- For the purposes of domestic shipping, Polyethylene resins have not been classified as being hazardous materials by the Ministry of Transportation, through its ruling regarding "Regulations for the Transporting Over Highways of Hazardous Products" enacted by Decree 96044, dated May 18, 1988. The UN does not classify Polyethylene as being hazardous either.

15. Regulations

- No specific regulation regarding Polyethylene products exist.

16. Additional Information

- This material is free of Pb and Cd-based compounds

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