

MATERIAL SAFETY DATA SHEET

(According to Dir. 93/112/EC)

POLIDUX ABS

| 1. PRODUCT IDENTIFICATION | | |
|---|---|---------------------------------------|
| Company: POLIDUX, S.A. Address: Ctra. N-240, Km. 147 22400 - MONZÓN (HUESCA) Tel. # 974 41 81 00 Fax # 974 41 81 21 | Commercial name: POLIDUX ABS Chemical name: Acrylonitrile, butadiene, styrene copolymer. | |
| | Synonyms: | |
| | Molecular formula: | CAS # NP |
| Instituto Nacional de Toxicología: Emergency telephone: 91 562 04 20 | EC (EINECS) # NP | Annex I (Dir. 67/548/EEC) # NP |

| 2. COMPOSITION | | | |
|--|----------------|-----------------------|----------|
| General composition: Acrylonitrile, butadiene, styrene copolymer (it may contain I-metilestireno in some types). It may be additivated. | | | |
| Dangerous components: | Range % | Classification | |
| | | R | S |
| NP | | | |

| 3. HAZARD IDENTIFICATION | |
|--|--|
| PHYSICAL / CHEMICAL | TOXICITY / SYMPTOMS |
| Dust produced when grinding evolves a risk of fire. | Inhalation: At room temperature it does not exist monomers release. While processing, casting or extruding operations, traces of monomers may be released and result irritating to the respiratory tract. Ingestion/aspiration: Not probable. The product is solid at room temperature, so this exposition route is easy to avoid and not frequent. It is not toxic by ingestion. Contact skin/eyes: When the grinded product introduces in the eyes, it may cause irritation. Contact with the product is not harmful but exposure to melted product produces burns. General toxic effects: Vapours from melted product are irritating to eyes, nose and throat. |
| Does not float on water. May obstructs sewers and water intakes. | |
| The product in form of pellets presents a risk of slipping when there is a spill over the floor. | |

4. FIRST AID

Inhalation: In case of inhalation of the hot fumes, remove the victim to fresh air.

Ingestion: NP

Contact skin: In case of melted product burns, cool the liquid material quickly with plenty of water; It is not recommended to remove the solidified product without the assistance of medical aid. Call a doctor and treat as a normal hot-burn.

Contact eyes: Hold eyelids open and flush with large amounts of water for 15 min.

General measures: Obtain medical attention.

5. FIRE-FIGHTING MEASURES

Extinguishing agents: Foams, dry chemicals, CO₂ and spray water are effective. When dry chemicals are used, remove this power before continuing working.

Non suitable extinguishing agents: NP

Combustion products: CO₂, H₂O, CO (in defect of air), irritant fumes, thick smoke and soot.

Special measures: Move container from fire area if you can do it without risk. Cool exposed containers with water.

Special hazards: Melted product may leak, extend and propagate fire. Fire may produce toxic and irritating gases producing a risky breathing atmosphere in closed places. Dust produced when grinding evolves a risk of fire.

Protective equipment: Heat-resistant gloves. Self-contained breathing apparatus in case of thick fumes.

6. ACCIDENTAL RELEASE MEASURES

Precautions for the environment: Avoid spills of the product to sewer and drains.

Personnel precautions: NP

Cleanup methods: The pellets are slippery, so they must be sweep immediately when spilled in order to avoid fallings. Solid spills are shovelled into containers for later recovery or disposal. Remove ignition sources when dust is evolved. The product is not toxic.

Personnel protection: When dust is produced, full-face protective mask with filter is recommended. Wear goggles and gloves, to avoid contact with melted product.

7. HANDLING AND STORAGE

Handling:

General precautions: Do not smoke. Eliminate all ignition sources from areas where dust is evolved.

Specific conditions: Protective mask in presence of dust or vapours in large quantities from melted product. It must exist efficient ventilation in closed areas. Use of goggles whenever pellets are manipulated.

Storage:

Temperature and decomposition products: At room temperature, it does not present an special risk.

Dangerous reactions: NP

Storage conditions: Maintain cleaned the loading and unloading area. Pile up safety avoiding fallings or displacements. Protect sacks from sun light. Storage areas separated by fire-break walls. The product is normally package in 25 Kg. sack, 1000 Kg. containers or in bulk.

Incompatible materials: Oxidant materials, concentrated organic acids, aldehydes, ketones and chlorated solvents.

8. PERSONAL PROTECTION/EXPOSURE CONTROLS

Personnel protection:

Respiratory protection: In presence of vapours or when dust is produced, protective mask is recommended.

Eye protection: Safety goggles to avoid contact with pellets.

Skin protection: Gloves and boots invest with PVC and appropriate clothing.

Other protective equipment: Eyes washers and showers in working area.

General precautions: Local exhaust ventilation in processing areas. Do not smoke and avoid open flames. Avoid prolonged direct contact and vapour or dust inhalation.

Specific hygiene measures: Good work practices and the adoption of good personal hygiene measures reduce unnecessary exposures. Washing/Showering facilities with a non-solvent based skin cleaner, water and soap must be provided and used. Use skin reconditioning cream after work.

Exposure controls:

Styrene:

VLA-ED (INSHT); TLV/TWA (ACGIH): 20 ppm

VLA-EC (INSHT); TLV/STEL (ACGIH): 40 ppm

Acrylonitrile:

VLA-ED (INSHT); TLV/TWA (ACGIH): 2 ppm

Butadiene:

VLA-ED (INSHT); TLV/TWA (ACGIH): 2 ppm

1-methylestyrene:

TLV / TWA.(ACGIH): 50 ppm

TLV / STEL (ACGIH): 100 ppm

| 9. PHYSICAL AND CHEMICAL PROPERTIES | |
|--|---|
| Appearance: Solid (pellets) | pH: NP |
| Colour: | Odour: Characteristic. |
| Boiling range: | Melting point: >200°C |
| Flash point: | Autoignition temperature: NP |
| Explosive properties: LEL: 1.1% (Styrene); LEL: 3.1% (acrylonitrile); LEL: 2.0% (butadiene); LEL: 0.9% (I-methylstyrene) | Oxidizing properties: |
| Vapour pressure: NP | Density (apparent): 600 - 700 kg/m ³ Density (real): 1100 kg/m ³ |
| Vapour density: NP | Heat of combustion: |
| Surface tension: NP | Partition coefficient (n-octanol/water): |
| Water solubility: Insoluble | Solubility: |
| Other data: | |

| 10. STABILITY AND REACTIVITY | |
|---|--|
| Stability: Material stable at room temperature. It may decompose above 300 °C. | Conditions to avoid: Avoid ignition sources, direct flames and high temperatures. |
| Materials to avoid: Oxidant materials, concentrated organic acids, aldehydes, ketones and chlorated solvents. | |
| Hazardous decomposition/combustion products: When heated at high temperatures, it is emitted styrene and acrylonitrile monomers. Combustion products: CO (in defect of air), CO ₂ and soot. | |
| Polymerization risk: NP | Conditions to avoid: NP |

11. TOXICOLOGICAL INFORMATION

Routes of exposure: Inhalation of dust or vapours from melted product. Other ways are skin and eyes from direct contact. Ingestion is easy to avoid and not frequent.

Acute and chronic effects: Vapours from heated or melted product are irritating to the respiratory tract. Exposure to melted product produces burns. It is not toxic by contact or ingestion. Chronic effects are unknown.

Carcinogenicity: NP

Reproductive toxicity: This chemical has no known mammalian reproductive toxicity.

Medical conditions which increase hazard to exposure: NP

12. ECOLOGICAL INFORMATION

Pollutant potential:

Persistence and degradability: The product has long hydrocarbon insoluble chains. No biodegradation process is known. It is not readily removed from water or soil and has a high persistence in the environment.

Mobility/bioaccumulate potential: There are no data available on bioaccumulative problems, in living organisms or incidence in the trophic food chain.

Ecotoxicological effects: There are no data available on the ecotoxicological effects of the product.

13. DISPOSAL CONSIDERATIONS

Disposal methods (surplus): Recycling and recovery of the material when possible.

Waste: Solids from industrial processes. Not classified as toxic and/or dangerous.

Disposal: Controlled incineration, security deposits or reuse. Do not burn the product in open air to eliminate it.

Handling: NP

Community provisions: Companies which recover, dispose, store, transport or handle waste should comply with Dir. 91/156/EEC on waste or other local, national or community provisions.

14. TRANSPORT INFORMATION

Special precautions: Stable at room temperature and during transport. Avoid sparks. Do not smoke.

Additional information:

UN number: NP

Hazard identification number: NP

ADR / RID: NP

IATA-DGR: NP

IMDG: NP

15. REGULATORY INFORMATION

| CLASSIFICATION | LABELLING |
|-----------------------|--|
| NP | Symbols: NP Phrases R: NP Phrases S: NP |

Other regulations:

16. OTHER INFORMATION**Data bases consulted:**

EINECS: European Inventory of Existing Commercial Substances.
RTECS: US Dept. of Health & Human Services.
HSDB: US National Library of Medicine.
CHRIS: US Dept. of Transportation.

Legislation consulted:

Dir. 67/548/EEC of dangerous substances (including amendments and adaptations in force).
Dir. 88/379/EEC of dangerous preparations (including amendments and adaptations in force).
Dir. 91/689/EEC dangerous waste; Dir. 91/156/EEC waste management.
Royal Decree 363/95: Regulation about notification of new substances and classification, packaging and labelling of dangerous substances.
European Agreement concerning the international carriage of dangerous goods by road (ADR).
Regulation on the international transport of dangerous goods on the railway. (RID)
International maritime code of dangerous goods. (IMDG)
International Civil Aviation Organization (ICAO) and International Air Transport Association (IATA) regulation pertaining to air shipment.

GLOSSARY:

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|---|--|
| CAS: Chemical Abstract Service | LD ₅₀ : Lethal Dose Medium |
| IARC: International Agency for Research on Cancer | LC ₅₀ : Lethal Concentration Medium |
| TLV: Threshold Limit Value | TDL ₀ : Toxic Dose Low |
| TWA: Time Weighted Average | LDL ₀ : Lethal Dose Low |
| STEL: Short-term Exposure Level | EC ₅₀ : Effective Concentration Medium |
| REL: Recommendable Exposure Limit | IC ₅₀ : Inhibitory Concentration Medium |
| PEL: Permissible Exposure Limit | ADI: Acceptable Daily Intake |
| BEI: Biological Exposure Index | BOD: Biological Oxygen Demand |
| | NP: Not Pertinent |
| | : Changes from last revision. |

The information given in this document has been compiled based on the best existing information sources, latest available knowledge and according to the current requirements on classification, packaging and labelling of hazardous substances. It does not imply the information is exhaustive or accurate in all cases. It is the user's responsibility to evaluate if the information contained in this Material Safety Data Sheet satisfies him/herself to the application of the information and/or the recommendations given for his/her own use.