



MATERIAL SAFETY DATA SHEET (MSDS)

MSDS No. : 2002

Issued Date: NOV.01, 2007

1. CHEMICAL, PRODUCT & COMPANY IDENTIFICATION

PRODUCT NAME : **TITALON 2158GCF**
MANUFACTURER : TITAN PLASTICS COMPOUNDS CO., LTD
SECTION IN CHARGE : Quality Management
ADDRESS : No.8, S. 1st Rd., Pingtung Export Processing Zone, Pingtung City, 90093, Taiwan, R.O.C
TELEPHONE NUMBER : 886-8-7522966
FACSIMILE NUMBER : 886-8-7522066

2. COMPOSITION / INFORMATION ON INGREDIENTS

COMPOSITION: adipic acid – hexamethylenediamine resin (nylon 6/6) ≥ 75 . - ≤ 80 . %
Carbon fiber/glass beads > 20 - ≤ 25 %
CAS No. : 32131-17-2 (base resin) .

3. FIRST-AID MEASURES

EYE CONTACT: Immediate first aid is not likely to be required.
This material can be removed with water.

SKIN CONTACT: Immediate first aid is not likely to be required.
This material can be removed with water.

INHALATION: Immediate first aid is not likely to be required.
If symptoms occur, remove to fresh air.
Remove material from eyes, skin and clothing.

INGESTION : Immediate first aid is not likely to be required.
A physician or Poison Control Center can be contacted for advice.
Wash heavily contaminated clothing before reuse.

4. FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA : Water spray, foam, dry chemical, or carbon dioxide

SPECIFIC METHODS : Extinguish the fire with water. A method of extinguishing an ordinary fire may be applied. Do not apply water directly to processing machines.

SPECIFIC HAZARDS : carbon monoxide (CO); carbon dioxide; ammonia (NH₃); hydrogen cyanide (HCN); nitrogen oxides (NO_x)

SPECIAL EQUIPMENT FOR THE PROTECTION OF FIREFIGHTERS : Firefighters, and others exposed, wear self-contained breathing apparatus.
Equipment should be thoroughly decontaminated after use.

5. ACCIDENTAL LEAKAGE MEASURES

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| PERSONAL PRECAUTIONS : | When pellets were spilled on the road or floor, wipe them off with a besom or cleaner not to cause slipping. |
| ENVIRONMENTAL PRECAUTION : | Keep out of drains and water courses. Pellets may present a physical ingestion hazard to wildlife due to resemblance to grains.Clean up spills immediately. |
| METHODS FOR CLEANING UP: | In case of spill, sweep, scoop or vacuum and remove. Flush spill area with water. |

6. HANDLING AND STORAGE

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| HANDLING 1: | Handle in accordance with good industrial hygiene and safety practices. |
| HANDLING 2: | These practices include avoiding unnecessary exposure and removal of material from eyes, skin and clothing. |
| HANDLING 3: | Emptied containers retain vapour and product residue. Observe all recommended safety precautions until containers are cleaned, reconditioned or destroyed. The reuse of this material's container for non industrial purposes is prohibited and any reuse must be in consideration of the data provided in this material safety data sheet. |
| STORAGE :1 | Keep the substance away from any fire or heat sources for the sake of safe storage. |
| STORAGE 2: | Stable under normal conditions of handling and storage. |

7. EXPOSURE CONTROL / PERSONAL PROTECTION

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| CONTROL CONCENTRATION | None at present. |
| PERMISSIBLE CONCENTRATION: | ACGIH has not established specific exposure limits for this material. However, they have established limits for particulates not otherwise regulated (PNOR) and particulates not otherwise classified (PNOC) respectively, which are the least stringent exposure limits applicable to dusts. ACGIH TLV: 10mg/m ³ (total dust) 8-hr TWA ACGIH TLV: 3mg/m ³ (respirable) 8-hr TWA |
| ENGINEERING MEASURE: | Provide natural or mechanical ventilation to minimize exposure. If practical, use local mechanical exhaust ventilation at sources of air contamination such as processing equipment. |
| RESPIRATORY PROTECTION: | Avoid breathing dust. Use approved respiratory protection equipment when airborne exposure limits are exceeded. Consult the respirator manufacturer to determine the appropriate type of equipment for a given application. Observe respirator use limitations specified by the manufacturer. |
| EYE PROTECTION: | Does not cause significant eye irritation or eye toxicity requiring special protection. Use good industrial practice to avoid eye contact. |
| HAND PROTECTION: | Wear heat-resisting gloves against burns, when handling molten polymer. |
| SKIN & BODY PROTECTION: | Wear long sleeve clothes against burns, when handling molten polymer. |

8. PHYSICAL AND CHEMICAL PROPERTIES

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| APPEARANCE : | Pellet. |
| ODOR: | Slight characteristic odor. |
| PHYSICAL STATE: | Solid. |
| BOILING POINT: | Not applicable. |
| VOLATILITY: | Not applicable. |
| MELTING POINT : | 257 - 267 C |
| DENSITY: | 1.15~1.25 |
| SOLUBILITY: | Insoluble in water. |
| FLASH POINT: | >371 C Estimated |
| EXPLOSION PROPERTY: | Not applicable. |
| INFLAMMABILITY: | Inflammable (Designated as inflammable resin by the Fire Service Law). |
| REACTIVITY WITH WATER: | None. |
| SELF-REACTIVITY: | None. |

9. STABILITY AND REACTIVITY

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| STABILITY AND REACTIVITY CONDITIONS TO AVOID: | Stable for normal storage or handling. None known |
| MATERIALS TO AVOID: | None known |
| HAZARDOUS REACTIONS: | Hazardous polymerization does not occur. |
| DECOMPOSITION : | Decomposition temperature > 300 C |
| HAZARDOUS DECOMPOSITION PRODUCTS: | carbon monoxide (CO); carbon dioxide; ammonia (NH ₃); hydrogen cyanide (HCN); nitrogen oxides (NO _x) |

10. TOXICOLOGICAL INFORMATION

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| SKIN CORROSIVE PROPERTIES : | No finding |
| SENSITIZING & IRRITANT EFFECTS: | No finding |
| ACUTE TOXICITY (INCLUDING LD ₅₀) | No finding |

SUBACUTE TOXICITY : No finding

CHRONIC TOXICITY : No finding

MUTAGENECITY (Micro organisms, chromosomal aberration): No finding

REPRODUCTIVE TOXICITY : No finding

TERATOGENICITY : No finding

11. ECOLOGICAL INFORMATION

BIODEGRADABILITY: No finding.

BIOACCUMULATION : No finding.

FISH TOXICITY: No finding.

12. DISPOSAL CONSIDERATION

WASTE FROM RESIDUES 1 : This is designated as waste plastics among industrial wastes by the Wastes Disposal Law. Disposal waste through licensed wastes handlers or local autonomous bodies if they are handling wastes disposal.

WASTE FROM RESIDUES 2 : When disposed by incineration, use the well controlled incinerators in accordance with the Wastes Disposal Law, Air Pollution Control Law and Water Pollution Prevention Law.

13. TRANSPORT CONSIDERATION

UN CLASSIFICATION NUMBER: Not regulated for transport.

14. REGULATORY INFORMATION

FIRE SERVICE LAW: Inflammable synthetic resin.

WASTE DISPOSAL LAW: Waste plastics among industrial wastes.

15. OTHER INFORMATION

HANDLING OF THE DETAILS GIVEN ABOVE: Details given above are based on references, information and data available at this moment, but no warranty can be made on exactness of these details. They are also prepared on the assumption that the product will be handled in a normal way. For special handling, adequate safety and environmental measures should be taken in respect to its applications. Our products are not specifically intended for implants for medical and dental applications, and therefore they are not recommended for such applications. "No finding" in this report means that there will be no hazard in general, but no proving data is available at the time of reporting.

WHERE TO CALL FOR FURTHER INFORMATION : 08-7522966