SAFETY DATA SHEET(SDS)

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FileNo. 3003-1

1.Chemical Product & Company Identification

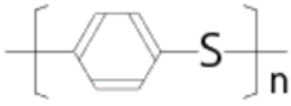
CHEMICALPRODUCT NAME:	DURAFIDE® 6345A4 HD9050
NAME OF COMPANY:	Polyplastics Co.,Ltd.
ADDRESS:	2-18-1 Konan, Minato-ku, Tokyo,108-8280 Japan
SECTION IN CHARGE:	Quality Assurance Dept.
TELEPHONE NUMBER:	03-6711-8605
FACSIMILE NUMBER	03-6711-8616

2. Hazards identification

[GHS CLASSIFICATION]

Physical and Chemical Hazards	:	・Flammable solids : Classification not possible ・Self-reactive substances and mixtures : Not applicable ・Pyrophoric solids : Not classified ・Self-heating substances and mixtures : Classification not possible ・Substances and mixtures, which in contact with water, emit flammable gases : Not classified ・Oxidizing solids : Not classified ・Corrosive to metal : Not classified
Health Hazards	:	・Carcinogeneses : No hazard ・Specific target organ/systemic toxicity (Repeated exposure) : No hazard
Environmental Hazards	:	Classification not possible
[SYMBOL]	:	None
[SIGNAL WORD]	:	None
[HAZARD STATEMENT]	:	None
[PRECAUTIONARY STATEMENTS]		
Prevention	:	・Wash hands thoroughly after handling. ・Wear protective gloves.
Response	:	-
Storage	:	Avoid direct sunlight and store in a well-ventilated place.
Disposal	:	Dispose of contents/container in accordance with local & national regulations.

3. Composition/information on ingredients

SUBSTANCE/MIXTURE	:	Mixture
COMMON CHEMICAL NAME	:	Polyphenylene sulfide
SYNONYMS	:	Polyphenylene sulfide(PPS)
INGREDIENTS AND COMPOSITION	:	PPS ≧53.7%, Carbon black <0.3%, Glass fiber and Polytetrafluoro ethylene(PTFE), etc. ≦46%
CHEMICAL FORMURA	:	
SERIAL No. IN OFFICIAL GAZETTE	:	7-1143(base resin) (Law Concerning Examination and Regulation of Manufacture, etc., of Chemical Substances)
CAS №.	:	26125-40-6(base resin)
INGREDIENTS CONTRIBUTING TO THE HAZARD	:	Cadmium, lead, hexavalent chromium and mercury are not used in this grade.

4. First-aid measures

INGESTION	:	When a gas generated from the molten polymer has been inhaled,

		move to area of fresh air without delay and wait until the victim is recovered. When a fume generated by heat or burning has been inhaled, move to area of fresh air. If sick feeling continues, ask a physician for advice.
SKIN CONTACT	:	Cool the contacted skin with clean water without delay, if a contact with the polymer in a molten form. Do not force to remove the solid resin on the skin. If any burns are observed on the skin, ask a physician for advice.
EYE CONTACT	:	Cool and rinse the eye with clean water for at least 15 minutes when the eyes had contact with molten polymer. In case of wearing contact lenses, remove the lenses as soon as possible, and ask a physician for advice. When the eye had contact with the polymer in an ordinary solid form, rinse the eye with clean water without delay. If the discomfort persists, ask a physician for advice.
SWALLOW	:	Help to vomit as much as possible. If sick feeling continues, ask a physician for advice.

5. Fire-fighting measures

EXTINGUISHING MEDIA	:	Water, foam fire-extinguishing agent, powder fire-extinguishing agent, and carbon dioxide gas.
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	:	Incomplete combustion leads to generation of toxic gases such as carbon monoxide or sulfur compound gas, in addition to carbonic acid gas and water. The filler, PTFE, generates hazardous fume and gases when it is heated up to a high temperature.
SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS	:	In case the fire gained force,use a gas mask or other protective equipment. When PTFE is exposed to fierce fires,use a totally enclosed gas mask or other protective appliances such as air aspirator or protective clothes.

6. Accidental release measures

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	:	Handle the spillage in accordance with provisions given in the ″Resin pellet spillage preventive manual″, in order to prevent intakes by marine animals and birds.

7. Handling and storage

HANDLING	:	PPS resin in a pellet form will neither ignite nor explode at room temperatures.
HANDLING 2	:	This pellets spilled on the floor are likely to cause slipping. Remove such spillage at any times.
HANDLING 3	:	For molding work, effective means for local exhaust are required to discharge gases generated by melt processing.
HANDLING 4	:	Avoid inhaling of gases generated in molding work. Do not directly touch resin of high temperature.
HANDLING 5	:	Avoid retaining hot resin in the processing machines for many hours.
HANDLING 6	:	Glass fibers are not generally exposed in a single substance under normal processing and handling conditions as they are compounded in pellets. However, the following measures will be necessary to minimize the exposure to glass fibers or dusts containing glass fibers, when pellets or molded parts containing glass fibers are cut, ground or burnt, depending on environmental and operational conditions.

・Those who are sensitive in skin to glass fiber should wear suitable(protective) clothes to minimize the exposure of their skin.
・Wash working clothes apart from other laundry, so that the latter will not cause contamination with glass fibers.
・Provide the workshop with partitions to prevent diffusion of glass fiber dusts.
・Pay precautions not to rub face, neck, arms or hands. Wash them with water and gargle after working.
・Keep dust sources totally enclosed.
・Provide local air exhausters and implement periodical inspections and adjustments at least once a year.
・Reduce cutting and grinding processes to the possible minimum, and devise working procedures to minimize dust generation.
・Provide dust-preventive masks, protective glasses and gloves for personal hygiene.
・Determine the operational environment at indoor working places and confirm the effects of environmental improvement.
Note) Glass fibers are, like road dusts, told to be least hazardous to human bodies, but proper measures are required to avoid useless inhaling.

STORAGE	:	Keep the substance away from any fire or heat sources for the sake of safe storage.
STORAGE 2	:	Handle in accordance with municipal rules and regulations.
STORAGE 3	:	No smoking at a storage.
STORAGE 4	:	Smoking a cigarette to which a PTFE product is adhered may lead to inhaling a decomposed gas. Therefore, prohibit smoking at working places. Wash your face and hands after handling products. Keep it in mind that the products will not adhere to the cigarettes. Close the cover of products after handling products.
RECOMMENDED PACKAGING MATERIALS	:	No information.

8. Exposure controls/ personal protection

CONTROL CONCENTRATION	:	None at present
PERMISSIBLE CONCENTRATION	:	OSHA PEL/1985 Max. permissible concentration of inactive powder 15mg/m3 – ditto – (Aspiration) 5 mg/m3 ACGIH TLV/1992 1993 Exposure limit of the powder TWA 10 mg/m3
ENGINEERING MEASURE	:	・When handling dust: Use totally enclosed containers resisting dust explosion. ・When heat melted in molding: Effective local ventilation must be provided.
PERSONAL PROTECTIVE EQUIPMENT		
RESPIRATORY PROTECTION	:	Wear a dust-proof mask.
HAND PROTECTION	:	Wear heat-resisting gloves against burns, when handling molten polymer.
EYE PROTECTION	:	Wear protective glasses or goggles.
SKIN & BODY PROTECTION	:	Wear long sleeve clothes against burns, when handling molten polymer.

9. Physical and chemical properties

APPEARANCE etc.	:	Pellet
BOILING POINT	:	Not applicable
VAPOUR PRESSURE	:	Not applicable
VOLATILITY	:	Not applicable

INITIAL BOILING POINT	:	Not applicable
SUBLIMATION	:	None
MELTING POINT	:	275℃~285℃
DENSITY	:	1.68
SOLUBILITY	:	Insoluble in water
FLASH POINT	:	400℃ or higher
IGNITION POINT	:	500℃ or higher
EXPLOSION PROPERTY	:	Not applicable
INFLAMMABILITY	:	None
REACTIVITY WITH WATER	:	None
OXIDIZABILITY	:	None
SELF-REACTIVITY	:	None
DUST EXPLOSIVENESS	:	Upper explosion limit : Not applicable. Lower explosion limit : 35g/m3

10. Stability and reactivity

STABILITY AND REACTIVITY	:	Stable for normal storage or handling.
CONDITIONS TO AVOID	:	The filler PTFE could react with powdered metals such as aluminium or magnesium and with oxydizing agents such as fluorine and fluorides like fluorine trichloride and cause fire or explosion.
HAZARDOUS DECOMPOSITION PRODUCTS	:	The filler PTFE starts decomposing very slowly at a temperature higher than 260℃. The decomposition rate increases at a temperature higher than 400℃. 〈Temperature level and constituents likely to start formation〉

Tetrafluoroethylene	430℃ or higher
Hexafluoropropyrene	440℃ or higher
Perfluoroisobutylene	475℃ or higher
Carbonyl fluoride	500℃ or higher

11. Toxicological information

SKIN CORROSION/IRRITATION	:	No finding.
SERIOUS EYE DAMAGE/IRRITATION	:	Gas generated in drying or melting is irritating eyes and skins.
RESPIRATORY OR SKIN SENSITISATION	:	No finding
ACUTE TOXICITY(INCLUDING LD50)	:	No finding.
SUBACUTE TOXICITY	:	No finding.
CHRONIC TOXICITY	:	No finding.
CARCINOGENECITY	:	This product contains the substance of carcinogenic category 2 in the GHS classification.(CB)
MUTAGENECITY(Micro organisms, chromosomal aberration)	:	No finding.
REPRODUCTIVE TOXICITY	:	No finding.
TERATOGENICITY	:	No finding.
OTHERS(Including generation of hazardous gases by reaction with water, for example)	:	No finding in this report means that there will be no hazard in general, but no proving data available at the time of reporting.
OTHER CAUTIONS	:	With regard to dust, the maximum permissible concentration and limits are fixed by OSHA and ACGIH.
OTHER CAUTIONS 2	:	Information on hazards of glass fibers as filler.

〈Effects on Human Bodies〉

(1) Effects on skin

Stimulation to the skin with glass fibers may be caused when glass fibers diameter is larger than 4.5~5 μm. They give mechanical stimulation followed by itchiness to the skin, but further continuous exposure reportedly results in extinction of

stimulation. It may sometimes leads to irritable dermatitis complicated with urticaria or eczema–like reaction. It is, however reported that such dermatitis is not so serious in general and does not last too long. Therefore, skin stimulation can be prevented by proper use of glass fibers.

(2) Effects on Tumor

Investigations made on glass fibers till today reveal that there is neither increase in mortality of glass fiber production workers due to lung cancer or mesothelioma nor such cases reported.

〈Animal Test Report〉

It is suggested that carcinogenecity of mineral fibers is dependent on their shapes rather than on their constituents. According to a report on experiments using 17 kinds of artificial mineral fibers in various sizes prepared by Dr. Stanton of National Cancer Institute, in USA, statistical studies on correlations between the diameter and length of fibers and the coincidence of mesothelioma have revealed that mineral fibers having a diameter smaller than 0.25 μm and a length larger than 8 μm are closely related to the coincidence of cancers. Since these experiments were performed by artificially dosing the subject animals with a large quantity of glass fibers and consequently they are quite different from the actual exposures to human bodies, it is told to be problematic to make a conclusion that mineral fibers are hazardous to human health, basing on the results obtained from these experiments. Up to the present time, there is no result obtainable to demonstrate a mechanism of glass fibers causing lung cancers in spite of experiment by long exposure to glass fibers with high concentration.

OTHER CAUTIONS 3 : Hazardousness of PTFE, the filler is as follows:

Animal test

・ Not stimulative to the skin. Inhaling PTFE dusts of high concentration leads to stimulation to the lung. No notable toxic effect observed by repeated dosing. Dosing for a long period causes changes in White blood counts. No genic toxicity noted in animal and culture studies of bacterial cells.

Influences to human health

・ Inhaling fume generated during combustion is likely to cause polymer fume fever with symptoms like transient influenza accompanying fever, chills and coughing lasting for 24 hours. No absorption from the skin. No report on sensitization available.

Adverse effects of hydrogen

・ Inhaling hydrogen fluoride of low concentration causes firstly hard breathing following by coughing and severe irritation of eyes, nose and throat, then successive chills for 1 or 2 days, and finally difficulty in breathing, cyanosis and pulmonary edema. Exposure to hydrogen fluoride of high concentration, for short time or long time, will give damages to liver and kindneys.

Adverse effects of carbonyl fluoride

Skin : Unpleasantness or herpes

Eyes : Corneal or conjunctival ulceration

Respiratory organs : Irritation

Lungs : Transient irritation such as coughing unpleasantness, hard breathing or short breathing

Carcinogenicity : No description with Japan Industrial Hygiene

Society (1933 edition), OSHA (1993 edition), NTP (1989 edition)
IARC (1987 edition): Group 3

OTHER CAUTIONS 4	:	Toxicological information of Carbon black which is an ingredient is shown below. Toxicity of the ingredient does not appear as product for pellet. When dust is generated by cutting and sanding, toxicity appears. Avoid breathing dust and avoid generating dust. [Carbon black] Acute toxicity Oral: Rat LD50 15,400mg/kg GHS Not classified Dermal: No information Inhalation: No information Skin Corrosion/Irritation: No information Eye Damage/Irritation: No information Sensitization-Skin: No information Germ Cell Mutangenicity: No information Carcinogenicity: IARC 2B; Possible carcinogenic to humans. Toxicity to Reproduction: No information Specific Target Organ Toxicity(Single Exposure) No information Specific Target Organ Toxicity(Repeated Exposure) Category 1 based on the influence on lungs (the hyperplasia of the epithelium, pulmonary fiber symptom) in pneumoconiosis of human and a rat inhalational examination in the range of guidance level Category 1 Aspiration Hazard: No information
REMARKS	:	Hazards information and so on result from the national classification of carbon black.

12. Ecological information

BIODEGRADABILITY	:	No finding.
BIOACCUMULATION	:	No finding.
FISH TOXICITY	:	No finding.
Hazards to ozone layer	:	None

13. Disposal considerations

WASTE FROM RESIDUES	:	This is designated as waste plastics among industrial wastes by the Wastes Disposal Law. Disposal waste pellets through licensed wastes handlers or local autonomous bodies if they are handling wastes disposal.
WASTE FROM RESIDUES 2	:	Landfill in accordance with local regulation and do not incineration.

14. Transport information

UN CLASSIFICATION NUMBER	:	Not restricted for ICAO/IATA.
OTHER CAUTIONS	:	Handle with care so as not to give damages to containers or not to be subjected to wetting.
OTHER CAUTIONS 2	:	Secure the containers firmly so as not to cause collapsing.

15. Regulatory information

WASTE DISPOSAL LAW	:	Waste plastics among industrial wastes.
INDUSTRIAL SAFETY AND HEALTH LAW	:	Designated as Cabinet order No.93 Annex 9 No.130.(Carbon black)

16. Other information

HANDLING OF THE DETAILS GIVEN ABOVE	:	This SDS is the English version translated from the Japanese SDS which is prepared for domestic use. 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 : Polyplastics Co., Ltd. Quality Assurance Dept.
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