

Material Safety Data Sheet

1. Product and Company Identification

Product Name: NOVALLOY (S series)

(Grade Name)

S3100, S3500, S4100

Company Identification:

Name of Manufacturer: Daicel Polymer Ltd

Name of Department in Charge: Technical Development Center

Address: 12 Fujicho, Hirohata-ku, Himeji, Hyogo 671-1123, Japan

Phone: +81-79-238-1209, FAX: +81-79-238-1241

2. Hazards Identification

Potential health effect:

Polymer particulates may be inhalation-hazardous.

Physical and Chemical Hazards:

Flammables designated by Fire service law.

Dust may cause dust explosion.

Molten material can cause thermal burns in contact with skin.

GHS Classification:

Health hazards

1.Acute toxicity (oral)	Not classified
2.Acute toxicity (skin/dermal)	Classification not possible
3.Acute toxicity (gas)	Classification not possible
4.Acute toxicity (vapour)	Classification not possible
5.Acute toxicity (dust, mist)	Classification not possible
6.Skin corrosion/irritation	Category 3
7.Serious eye damage/eye irritation	Not classified
8.Respiratory sensitizer	Not classified
9.Skin sensitizer	Not classified
10.Germ cell mutagenicity	Not classified
11.Carcinogenicity	Category 2
12.Toxic to reproduction	Not classified
13.Effects on or via lactation	Classification not possible
14.Specific target organ systemic toxicity following single exposure	Not classified
15.Specific target organ systemic toxicity following repeated exposure	Not classified
16.Aspiration hazard	Classification not possible
Aquatic Environmental hazards	
17.Acute hazards to the aquatic environment	Not classified
18.Chronic hazards to the aquatic environment	Not classified

GHS label elements

Pictograms



Signal words Warning

Hazard statements - Causes skin irritation.
- Suspected of causing cancer.

Precautionary statements - Refer to the Material Safety Data Sheet (MSDS) before handling the material.
- Use protective gears when you handle the material.
- Provide a local ventilation system in the processing room.
- Use appropriate fire extinguisher in case of fire.

- Avoid environmental pollution.
- Store away from heat and open flames.
- In case of eye contact, flush eyes with plenty of water and get medical attention.
- In case of skin contact, wash affected areas with soap and water.
- Disposal should be in accordance with existing state and local environmental control laws and regulations.

3. Identification of Material

Substance/Mixture

Mixture

Ingredients

Polycarbonate(PC)

Acrylonitrile-butadiene-styrene copolymer(ABS)

Brominated flame retardant(#)

Others

(#)Neither PBB(POLYBROMINATEDBIPHENYL) or PBDE(POLYBROMINATED DIPHENYL ETHER) are not used as brominated flame retardants.

Composition

PC+ABS

Equal to or greater than 70 mass percent

Brominated flame retardant

Less than 20 mass percent

Others

Less than 10 mass percent

Antimony and its compounds as antimony trioxide

Grade

Mass percent

Grade

Mass percent

S3100

6.0

S3500

6.0

S4100

6.0

Impurities and stabilizing additives, which contribute to GHS classification

Styrene

Less than 0.3 mass percent

Antimony and its compounds

Colorants in colored materials may be categorized as the materials which are subject to the reporting requirement of Industrial Safety and Health Law.

Published Reference No. of Gazette

PC:7-738, ABS:6-176, Antimony trioxide:1-543

CAS No.

PC:25971-63-5, ABS:9003-56-9, Antimony trioxide:1309-64-4

4. First-Aid Measures

Inhalation :

Judging from the shape, it is unlikely that the pellets will be inhaled. If inhaled gas or fumes evolved from high temperature molten resins, remove to fresh air. Get medical attention in case having coughs, breathing or other difficulties.

Skin Contact :

No special skin protection required during normal handling and use, wash thoroughly after handling. Get medical attention in case of suffering from eczema. If contacted with condensates of gases evolved from the molten materials, wash thoroughly with water. If contact with molten materials, cool the contact area with water and get medical attention.

Eye Contact :

Flush eyes with plenty of water In case of eye contact. Rubbing eyes may cause irritation or injure the cornea. Get medical attention in case of any abnormalities.

Ingestion :

No acute toxicity if swallowed. If large amount swallowed, get medical attention.

5. Fire-Fighting Measures

Extinguishing Media

Water, water spray, and fire-extinguishers can be applied.

Extinguishing Measures:

Intense heat, dense black smoke, gasses containing carbon dioxide, carbon monoxide, and nitrogen oxides may be given during burning. Fire fighters should be equipped with

self-contained breathing apparatus and protective clothing.

6. Accidental Release Measures

Potential Human Effects

Spilled pellets/powders may cause slippage, collect and dispose if spilled.

Potential Environmental Effects

Leakage might cause environmental pollution. Immediate and full recovery should be done if accidentally released.

7. Handling and Storage

Handling:

Gases and fumes evolved during processing may irritate the respiratory tract and skin, large amount of them might cause nausea and headache in certain people, avoid inhalation. Dust emerged from cutting, sanding, grinding or other mechanical processing may cause dust explosion with static electricity or electrical sparks, keep work places clean to avoid accumulation.

Storage:

Store away from heat, open flames or other ignition sources, and direct sunrays, taking measures against static electricity. Avoid overload to prevent collapse of cargos.

8. Exposure Control/ Personal Protection

Control Concentration: Not Specified:

Not Specified.

Tolerable Concentration:

No tolerance of dusts is specified by either Japan Association of Industrial Health or ACGIH, the figures shown below can be used for reference.

Recommended Value of Japan Assn. of Industrial Health (2008) Class 3 Dust

Time Weighted Average Value: Inhalant Dust 2 mg/m³ Total Dust 8 mg/m³

Recommended Value of ACGIH (2008) (Respirable Particulate)

Time Weighted Average Value: Inhalant Dust 3 mg/m³ Total Dust 10 mg/m³

Ventilation:

Gases and fumes may be evolved during processing at high temperature, installation of local ventilation is recommended.

Protective Equipment for Respiration:

Dust respirator should be worn in mechanical processing or sanding of moldings that may cause dust. In high gases/fumes concentration area, a chemical cartridge respirator (for organic chemicals) should be worn.

Protective Goggles:

Use protective goggles in mechanical processing or sanding moldings that may cause plastics particles.

Protective Gloves:

Use adiathermic gloves in handling molten resins.

Protective Clothing:

Wear clothes with long sleeves in handling molten resins.

9. Physical/Chemical Properties

Appearance	: Solid in granular shape
Odour Threshold	: No information
Melting Point	: Shows no definite melting point.
Flash Point	: Not Available
Explosion Limit	: Not Available
Boiling Point	: Not available
Autoignition Temperature:	Not autoignitable
Flammability	: Flammable
Explosive nature	: Polymer particles might form explosive gas mixture
Specific Gravity	: 1.2 - 1.3
Solubility	: Insoluble in water

10. Physical Hazard (Stability and Reactivity)

Flammability	: Not autoignitable.
Reactivity with Water	: None.
Oxidizability	: None in normal storage and handling.
Reactivity	: Gases/fumes may be evolved at high temperature, molten polymers should promptly be cooled with water.
Stability	: Stable in normal storage and handling.

11. Toxicological Information

Acute toxicity (oral):

Oral LD50 (Rat) > 5000mg/kg (Assumed Value).

Skin corrosion/irritation:

Gases/fumes evolved during drying/processing may be irritative.

Serious eye damage/eye irritation:

Gases/fumes evolved during drying/processing may be eye-irritative.

Respiratory sensitizer / Skin sensitizer:

No Information

Germ cell mutagenicity:

No Information

Effects on or via lactation:

No Information

Carcinogenicity:

No Information

Toxic to reproduction:

No Information

Specific target organ systemic toxicity following single exposure:

No Information

Specific target organ systemic toxicity following repeated exposure:

No Information

Aspiration hazard:

No Information

Antimony trioxide contained in the material is categorized as follows.

- Carcinogenicity A2 designated by ACGIH

- Carcinogenicity 2B designated by IARC

12. Ecological Information

Predictable behavior of chemical substances in environment, Potential effect on environment, ecotoxicity:

No information

Biodegradability:

No information

Bioaccumulation:

No information

Migratability in soil:

No information

Others:

Never be abandoned or dumped in any ocean or water area in order to prevent ingesting of marine animals and birds.

13. Disposal Consideration

Waste disposal should be in accordance with the laws, rules, and ordinances related to the disposal of waste matters.

Dispose of them as unburnable garbage, otherwise burn up above 800 deg C and cool the resultant dust down to lower than 280 deg C in an appropriate incinerator.

14. Transport Information

Avoid wetting or rough handling so that the packaging will not be damaged. Granules may cause a slipping hazard, if spilled gather up them all immediately.

15. Regulatory Information

The Fire Defense Law

Designated as Flammables (3,000kg or above in storage).

Pollutant Release and Transfer Register (PRTR)

The products contain the following chemical substances subjected to reporting by PRTR Law.

Class 1 Antimony and its compounds as antimony trioxide (No.31)

Colored materials may contain as colorants the following PRTR chemical substances.

antimony compounds, chromium compounds, cobalt compounds, nickel compounds, copper compounds

Industrial Safety and Health Law (57-2-1, related law)

The products contain the following chemical substances subjected to reporting by PRTR

Law.

Styrene (No.322)

Antimony and its compounds as antimony trioxide (No.38)

Colored materials may contain the chemical substances subjected to reporting by PRTR Law with higher amount than the threshold levels, such as titanium dioxide, carbon black, chromium compounds, antimony compounds, cobalt compounds, nickel compounds, copper compounds or others.

Concerning Toxicological Information and GHS classification (Health Hazards and Ecological Information) for the colorants, please refer to the website of National Institute of Technology and Evaluation with following address.

Incorporated Administrative Agency

National Institute of Technology and Evaluation:

http://www.safe.nite.go.jp/english/ghsi_index.html

Industrial Safety and Health Law (95-6 and the related law)

The products contain antimony and its compounds as antimony trioxide.

Colored materials may contain titanium dioxide(IV) and/or its compounds.

16. Other Information

References:

1. Manual for Preventing the Discharging of Resin Pellets / Japan Plastics Industry Federation, June 1993
2. Prevention of dust explosion / Technology Institution of Industrial Safety, November 1983
3. Website of the Ministry of Health, Labor and Welfare

The information herein has been prepared on the basis of the materials, information, and data available at the time being drawn up; the information may be revised with subsequently acquired knowledge. Normal handling has been presupposed for the precautionary items; safety measures appropriate to application and usage should be taken in special handling or usage.

User is solely responsible for decision of applying the information herein in usage of the appropriate products.

This MSDS is the English version translated from the Japanese MSDS which is prepared for domestic use.