

MATERIAL SAFETY DATA SHEET



Date Updated: 2012-03-01
Version: SK-120301
Regulation: EC No 1272/2008

SECTION 1: SUBSTANCE IDENTIFICATION

Name of Substance: 1,4-Benzenedicarboxylic acid, 1,4-dimethyl ester, polymer with 1,4-cyclohexanedimethanol and 1,2-ethanediol
Product Name: SKYGREEN PN200
CAS #: 25038-91-9
EC #: -
(Pre) registration information of monomers*: TPA : 01-2119485970-27-****
MEG : 01-2119456816-28-****
CHDM : 01-2119448337-34-****

* All monomers are (pre) registered in this substance (polymer)

PRIMARY / COMMON USES

Uses by workers in industrial settings

| Identified Use (IU) name | Process Category (PROC) | Market sector by type of chemical product (PC) | Environmental release category (ERC) | Sector of Use (SU) |
|---------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Polymerization at production sites of substance (on-site) and at downstream user sites (off-site) | <p>PROC 1: Use in closed process, no likelihood of exposure</p> <p>PROC 2: Use in closed, continuous process with occasional controlled exposure</p> <p>PROC 3: Use in closed batch process (synthesis or formulation)</p> <p>PROC 4: Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p>PROC 5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)</p> <p>PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities</p> <p>PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities</p> <p>PROC 9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</p> | <p>PC 19: Intermediate</p> <p>PC 32: Polymer preparations and compounds</p> | <p>ERC 6c: Industrial use of monomers for manufacture of thermoplastics</p> <p>ERC 6d: Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers</p> | <p>SU 8: Manufacture of bulk, large scale chemicals (including petroleum products)</p> <p>SU 9: Manufacture of fine chemicals</p> <p>SU 12: Manufacture of plastics products, including compounding and conversion</p> |

Uses by consumers

| Identified Use (IU) name | Product Category (PC) | Environmental release category (ERC) | Article category related to subsequent service life (AC) |
|--------------------------------------------|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|
| Service Life of PETG contained in articles | PC 32: Polymer preparations and compounds | ERC 10a: Wide dispersive outdoor use of long-life articles and materials with low release ERC 11a: Wide dispersive indoor use of long-life articles and materials with low release | AC 13: Plastic articles |

COMPANY INFORMATION

Company name: SK Chemicals Co., Ltd
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SECTION 2: HAZARDS IDENTIFICATION

Classification:

1,4-Benzenedicarboxylic acid, 1,4-dimethyl ester, polymer with 1,4-cyclohexanedimethanol and 1,2-ethanediol (CAS No. 25038-91-9) is not classified according to Regulation (EC) 1272/2008 and Directive 67/548/EEC.

Labelling: Not applicable

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

| Component | Conc ⁿ / % | CAS / EC # | Classification |
|-------------------------------------------------------------------------------------------------------------|-----------------------|----------------|----------------|
| 1,4-Benzenedicarboxylic acid, 1,4-dimethyl ester, polymer with 1,4-cyclohexanedimethanol and 1,2-ethanediol | ≥ 99.9 | 25038-91-9 / - | See section 2 |

SECTION 4: FIRST AID MEASURES

After skin contact: - Remove contaminated clothing and shoes. Wash skin with soap and water for at least 15 minutes.
- Get medical attention if skin symptoms occurred.
- Wash contaminated clothing and shoes before reuse.

After eye contact: - Keep away from exposure if exposure effect occurred.
- In case of contact with substance, flush eyes with amount of water for at least 15 minutes.
- In case of contact with chemicals, get medical advice/attention.

After ingestion: - Get medical attention if swallowed amount of substance.

| | |
|--------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | - Get medical attention if irritation or symptoms occurred. |
| After inhalation: | <ul style="list-style-type: none"> - Move victim to non-contaminated place in fresh air. - Get medical attention if irritation or symptoms occurred. - Give artificial respiration if victim is not breathing. |
| Indication of immediate medical attention and notes for physician: | <ul style="list-style-type: none"> - Call emergency medical service. Get medical advice/attention if you needed. - Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. - If burned by contact with molten material, cool quickly as possible with water, and then go to see a physician for treatment of burn. |

SECTION 5: FIREFIGHTING MEASURES

Extinguishing media:

- o Suitable extinguishing media: CO₂, water, sand

Special fire-fighting procedures:

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Structural fire fighters' protective clothing will only provide limited protection.

Special exposure hazards:

- o Thermal decomposition products: Not available
- o Hazardous combustion products: CO₂, CO
- o Fire or explosion: Containers may explode when heated.
- o Unusual fire and explosion hazards: No explosion hazards

Sensitivity to static discharge: Not available

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions:

- Stop leak if you can do it without risk.
- Isolate exposed area.
- Keep unauthorized personnel away.
- Use certificated protective equipment.
- Ventilate the leaked area.

Methods for cleaning up / removal:

- Do not touch or walk through spilled material.
 - Prevent entry into waterways, sewers, basements or confined areas.
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SECTION 7: HANDLING AND STORAGE

Handling:

- Wash thoroughly after handling.
- Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures.

Prevention of Fire and Explosion: Not available

Storage:

- Store container in a well dry/cool place.
 - Keep away from waterways and sewers.
 - Keep away from any source of ignition.
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SECTION 8: EXPOSURE CONTROL / PERSONAL PROTECTION

Exposure limits / standards:

Specific exposure limits have not been established or are not applicable unless listed below.

- Regulation in Korean: Not available
- US (NIOSH, OSHA, AGGIH):
 - NIOSH- TWA: Not available
 - OSHA- TWA: Not available
 - ACGIH- TWA: Not available
- EU Regulation: Not available
- Biological Exposure Index: Not available

Engineering Controls:

- Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. Mechanical ventilation should be used during processing to remove any dusts, mists, or vapors which may be generated.
- Check legal suitability of exposure level.

Personal Protection:

Respiratory Protection:

- Wear NIOSH or European Standard EN 149 approved full or half face piece (with goggles) respiratory protective equipment when necessary.

Eye Protection:

- An eye wash unit and safety shower station should be available nearby work place.
- Wear safety glasses when working with molten material.

Skin Protection

- Wear chemical resistant gloves to avoid direct contact with chemical substance.
- Wear appropriate protective chemical resistant clothing to prevent exposure of skin.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

| | |
|----------------------------------------------|---------------------------|
| Appearance: | Colorless solid (pellets) |
| Odor | Slight odor |
| pH: | Not applicable |
| Melting / freezing point: | Softening point >100 °C |
| Initial boiling point and boiling range: | Not applicable |
| Flash point | Not available |
| Flammability: | Not available |
| Evaporation rate | Not available |
| Upper/lower flammability or explosive limits | Not available |
| Vapor pressure: | Negligible (20 °C) |
| Vapor density: | Not available |
| Water solubility: | Negligible |
| Density: | 1.27 g/ml (25 °C) |
| Specific gravity: | > 1 |
| Log partition coefficient (n-octanol/water): | Not available |
| Auto ignition temperature: | 454 °C (ASTM E659) |
| Decomposition temperature: | Not available |
| Viscosity: | Not available |

SECTION 10: STABILITY AND REACTIVITY

Stability: Not available

Conditions to avoid:

- Avoid contact with incompatible materials.
- Avoid release to the environment.

Materials to avoid: Not available

SECTION 11: TOXICOLOGICAL INFORMATION

| | <u>Conclusion / Remarks</u> |
|-----------------------------------------------|---------------------------------------------------------------------|
| (a) Acute toxicity; | Not available |
| (b) Skin corrosion/irritation; | Not available |
| (c) Serious eye damage/irritation; | Not available |
| (d) Respiratory or skin sensitization; | Not available |
| (e) Germ cell mutagenicity; | Not available |
| (f) Carcinogenicity; | IARC, NTP, OSHA, ACGIH, EU Regulation 1272/2008, US EPA: not listed |
| (g) Reproductive toxicity; | Not available |
| (h) STOT-single exposure; | Not available |
| (i) STOT-repeated exposure; | Not available |
| (j) Aspiration hazard. | Not available |

SECTION 12: ECOLOGICAL INFORMATION

| | <u>Conclusion / Remarks</u> |
|------------------------------------------------|------------------------------------|
| 12.1 Toxicity | Not available |
| 12.2 Persistence and degradability | Not available |
| 12.3 Bioaccumulative potential | Not available |
| 12.4 Mobility in soil | Not available |
| 12.5 Results of PBT and vPvB assessment | Not available |
| 12.6 Other adverse effects | Not available |

SECTION 13: DISPOSAL CONSIDERATIONS**Disposal method**

- Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Disposal precaution

- Consider the require attentions in accordance with waste treatment management regulation.

SECTION 14: TRANSPORT INFORMATION

| | |
|-----------------------|----------------------------------------|
| UN #: | Not regulated as a hazardous material. |
| Class: | Not applicable |
| Proper shipping name: | Not applicable |
| Packing group: | Not applicable |
| Marine pollutant | Not applicable |
| Other information: | Not applicable |

SECTION 15: REGULATORY INFORMATION

Dangerous as defined by the EU CLP 2008:

Labelling: Not applicable

Signal word : Not applicable

Hazard statement: Not applicable

Additional precautionary statements: Not applicable

SECTION 16: OTHER INFORMATION

Product safety data sheet for 1,4-Benzenedicarboxylic acid, 1,4-dimethyl ester, polymer with 1,4-cyclohexanedimethanol and 1,2-ethanediol prepared in accordance with Annex II of the REACH Regulation EC 1907/2006, Regulation (EC) 1272/2008.

Version: 1.0/EN

Revision date: 21 February 2011

This safety data sheet (SDS) is based on the legal provisions of the REACH Regulation (EC 1907/2006; article 31 and Annex II), as amended. Its contents are intended as a guide to the appropriate precautionary handling of the material. It is the responsibility of recipients of this SDS to ensure that the information contained therein is properly read and understood by all people who may use, handle, dispose or in any way come in contact with the product. Information and instructions provided in this SDS are based on the current state of scientific and technical knowledge at the date of issue indicated. It should not be construed as any guarantee of technical performance, suitability for particular applications, and does not establish a legally valid contractual relationship. This version of the SDS supersedes all previous versions.