Safety Data Sheet

1 PRODUCT AND COMPANY IDENTIFICATION

Product name: ECOLOSILK ADDITIVE
Intended use: additive
Manufacture:
Company name: NIPPON PAINT MARINE COATINGS CO., LTD.
Address: 2-1-2 Oyodo-kita, Kita-ku, Osaka, 531-8511 Japan
Telephone No.: +81-6-6455-9590
Facsimile No.: +81-6-6450-4085
24 hours Emergency telephone No.: +81-6-6455-9590

2 HAZARDS IDENTIFICATION

CLASSIFICATION CODE
Flammable liquids: Category 3
Acute toxicity - oral: Category 4
Acute toxicity - dermal: Category 3
Acute toxicity - inhalation: vapour: Category 3
Acute toxicity - inhalation: dust, mist: Category 2
Skin corrosion/irritation: Category 2
Serious eye damage/eye irritation: Category 2
Toxic to Reproduction: Category 1B
Specific target organ toxicity - single exposure: Category 3
Specific target organ toxicity - repeated exposure: Category 1, Category 2
Chronic hazards to the aquatic environment: Category 2

Symbol
Danger

H226 Flammable liquid and vapour
H302 Harmful if swallowed
H311 Toxic in contact with skin
H315 Causes skin irritation
H319 Causes serious eye irritation
H330 Fatal if inhaled
H335 May cause respiratory irritation
H360 May damage fertility or the unborn child
H372 Causes damage to organs through prolonged or repeated exposure
H411 Toxic to aquatic life with long lasting effect
3 COMPOSITION/INFORMATION ON INGREDIENTS

Substance or Preparation: Preparation.
Chemical nature: additive solution

<table>
<thead>
<tr>
<th>Ingredient Name</th>
<th>CAS No.</th>
<th>Concentration[%]</th>
<th>EC No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>pentane-2,4-dione ;</td>
<td>123-54-6</td>
<td>85-90</td>
<td>204-634-0</td>
</tr>
<tr>
<td>acetylacetone</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>dibutyltin dilaurate</td>
<td>77-58-7</td>
<td>10-15</td>
<td>201-039-8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: This product contained the following substances that present a human hazard in accordance with
EC No. 1272/2008.
ML code is one of manufacturer's own marks to control the quantity of new material for the countries
that regulate the new material.

4 FIRST-AID MEASURES

**Inhalation:**
If inhaled, remove to fresh air.
If not breathing, give artificial respiration.
If breathing is difficult, give oxygen.
Get medical attention immediately.

**Skin contact:**
In case of contact, immediately wash skin with plenty of water for at least 15 minutes while removing
contaminated clothing and shoes.
Get medical attention immediately.

**Eye contact:**
In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.
If easy to do, remove contact lenses, if worn.
Get medical attention immediately.

Call a physician if irritation develops and persists.

**Ingestion:**
If swallowed, do NOT induce vomiting unless directed to do so by medical personnel.
Never give anything by mouth to an unconscious person.
Get medical attention immediately.

5 FIRE-FIGHTING MEASURES

Do NOT use water jet.
Use water spray or dry chemicals.
Keep adjacent receptacles cool with copious quantities of water.
suitable fire-extinguishing media

Notes:
Fire will produce dense black smoke.
Decomposition products may be hazardous to health.
Avoid exposure and use breathing apparatus as appropriate.
Cool closed containers exposed to fire by spraying them with water.
Do not allow run off water and contaminants from fire fighting to enter drains or watercourses.
See section 10.

6 ACCIDENTAL RELEASE MEASURES

Avoid all sources of ignition(e.g.naked lights, unprotected light bulbs,electric handtools).
Ventilate the area and avoid breathing vapors.
Wear protective clothing and self-contained breathing apparatus when dealing with spillage or fire.
Collect spillage, where practicable, for safe disposal.
Should be disposed of wastes and empty containers in accordance with regulations made under the control of
pollution acts and the environmental protection acts.
Collect spillage, where practicable, using absorbent material, and dispose of spillage on the floor in a safe
manner.
Keep away from drains,surface- and ground-water and soil.
Do not allow spills to enter drains or water courses.
7 HANDLING AND STORAGE

Handling:
- Keep away from heat, sparks, and flame.
- Keep container closed.
- The product may charge electro statically.
- Operators should wear clothing which does not generate static (at least 60% natural fiber) and antistatic food wear.
- Do not breathe (dust, vapor, mist, gas).
- Use only with ventilation.
- Do not get in eyes, on skin, or on clothing.
- Avoid prolonged or repeated contact with skin.
- Wash thoroughly after handling.
- Do not take internally.
- Do not taste or swallow.
- Avoid release to environment.
- Protection as shown in section 8.

Storage:
- Keep container closed.
- Avoid prolonged or repeated contact with skin and inhalation.
- Keep away from heat, sparks and flame.
- Store in a well-ventilated, dry place away from sources of heat and direct sunshine.
- Do not store above 40 deg.C. (104 deg.F.).
- Avoid prolonged or repeated contact with skin.
- Keep locked up.
- Do not take internally.
- Do not taste or swallow.
- Do not allow to environment.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Measures:
- Prevent vapor build up by providing adequate ventilation during and after use.
- An eye wash facility should be readily available.
- The product should not be allowed to enter environment.
- Facilities storing or utilizing this material should be equipped with an eye wash facility and a safety shower.

Exposure limit:

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>EU</th>
<th>ACGIH</th>
</tr>
</thead>
<tbody>
<tr>
<td>pentane-2,4-dione ; acetylacetone</td>
<td>not est.</td>
<td>25 ppm</td>
</tr>
<tr>
<td>dibutyltin dilaurate</td>
<td>not est.</td>
<td>0.1(Sn) mg/m3</td>
</tr>
</tbody>
</table>

Notes: (RD)=respirable dust. (c)=ceiling limit. (Skin)=skin penetrative.
Mppcf=millions of particles per cubic foot.

Personal protection:
- Respiratory protection: Wear appropriate equipment shown in EU directive 89/656/EC.
- Hand protection: Wear impervious gloves.
Eye protection: Wear chemical splash goggles and face shield when eye and face contact is possible due to splashing or spraying of material.

Skin protection: Wear chemical resistant clothing such as gloves, apron, boots or whole bodysuits made from neoprene, as appropriate.

Environmental exposure control: Do NOT let this product enter the environment.

9 PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Color</td>
<td>colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>solvent odor</td>
</tr>
<tr>
<td>pH</td>
<td>no data.</td>
</tr>
<tr>
<td>Boiling point (range)</td>
<td>140 - 141[deg.C]/(284 - 286[deg.F])</td>
</tr>
<tr>
<td>Flash point</td>
<td>35[deg.C]/(95[deg.F])</td>
</tr>
<tr>
<td>Ignition temperature</td>
<td>340[deg.C]/(644[deg.F])</td>
</tr>
<tr>
<td>Lower explosive limit</td>
<td>1.7[%]</td>
</tr>
<tr>
<td>Higher explosive limit</td>
<td>no data.</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>1333.2[Pa]</td>
</tr>
<tr>
<td>Specific density</td>
<td>0.98/20[deg.C]/(68[deg.F])</td>
</tr>
<tr>
<td>Vapor density</td>
<td>The vapor and the gas are heavier than air.</td>
</tr>
<tr>
<td>Solubility in water</td>
<td>None or poor in water</td>
</tr>
<tr>
<td>Percentage volatile</td>
<td>89.9[%]</td>
</tr>
</tbody>
</table>

10 STABILITY AND REACTIVITY

Stability: Stable under recommended storage and handling conditions (see section 7).

When exposed to high temperature, may produce hazardous decomposition products such as carbon monoxide, carbon dioxide, oxides of nitrogen and smoke.

Hazardous reaction: Hazardous reaction will not occur.

Condition to avoid: Avoid heating temperatures above 40 deg.C.

Materials to avoid: Keep away from oxidizing agents, strongly alkaline and strongly acid materials in order to avoid possible exothermic reactions.

Hazardous decomposition products: The products decomposed on heating producing their oxide or monomers.

11 TOXICOLOGICAL INFORMATION

There are no data available on the product itself.

Toxicological information of ingredients:

Acute toxicity:
- pentane-2,4-dione; acetylacetone
  - LC50 (inhalation: vapour, rat) = 1224[ppm/1H]
  - LD50 (skin, rabbit) = 790[mg/kg]
  - LD50 (oral, rat) = 570[mg/kg]
- dibutyltin dilaurate
  - LC50 (inhalation: dust, mist, rat) = 0.075[mg/L/1H]
  - LD50 (skin, rabbit) = 2001[mg/kg]
  - LD50 (oral, rat) = 175[mg/kg]

Local effects:
- eye irritant
dibutyltin dilaurate
skin irritant
dibutyltin dilaurate
sensitization:
No data.
chronically long term effect:
dibutyltin dilaurate
specific effects
toxic for reproduction
dibutyltin dilaurate
Toxic for reproduction (CLP)

12 ECOLOGICAL INFORMATION

For spills or waste, take care to avoid contaminating environment.
Prevent spills and wastewater from entering sewers, water courses or law areas to avoid pollution.
There are no data available on the product itself.
Ecological information of ingredients
persistence pentane-2,4-dione; acetylacetone biodegradable:79-88%(4week/)
Data are based on "Biological and Bioaccumulation Data of Existing Chemicals Based on the SCSL Japan" Complied under the supervision of METI (MITI) Japan.

13 DISPOSAL CONSIDERATIONS

The product should not be allowed to inter drains and watercourses.
All notification, clean-up and disposal should be carried out in accordance with European Union, governmental and local regulations
Preferred method of waste disposal are incineration or biological treatment in federal/state approved facility
Wastes and empty containers should be disposed of in accordance with regulations made under the control of pollution acts and the environmental protection acts
Empty containers should be recycled or disposed of through an approved waste management facility.
It is strongly advised not to let the chemical enter into the environment.
It may be toxic or harmful to aquatic organisms.

14 TRANSPORT INFORMATION

UN regulation
UN Shipping name: PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning or reducing compound)
UN identification number: 1263
UN Class: class 3 Flammable liquids.
UN Packaging group: III
IMDG Class: class 3.3 High flashpoint group.
storage temperature Store below 40 deg.C.(104deg.F.).
See section 7. Handling and storage.
UN MARINE POLLUTANT MARINE POLLUTANT. Paste the label of "MARINE POLLUTANT".
15 REGULATORY INFORMATION

The information on the SDS is based on the present state of our knowledge and on current EU laws. Please refer to any other national measures that may be relevant.

16 OTHER INFORMATION

R22: Harmful if swallowed
R24: Toxic in contact with skin
R27: Very toxic in contact with skin.
R36/37/38: Irritating to eyes, respiratory system and skin
R51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R60: May impair fertility
R61: May cause harm to the unborn child
S16: Keep away from sources of ignition -- No smoking
S20: When using do not eat or drinks.
S23: Do not breath gas/fumes/vapor/spray (appropriate wording to be specified by the manufacturer).
S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical.
S29: Do not empty into drains.
S33: Take precautionary measures against static
S36/37/39: Wear suitable protective clothing and gloves and eye/face protection.
S37: Wear suitable gloves
S42: During fumigation/spraying wear suitable respiratory equipment.
S45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S53: Avoid exposure - obtain special instruction

This information contained in this data sheet represents the best information currently available to us. However, no warranty is made with respect to its completeness and we assume no liability resulting from its.

It is advised to make their own tests to determinate the safety and suitability of each such product or combination for their own.

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

The product should not be used for purposes other than shown in the safety data sheet without first obtaining written advice.
Safety Data Sheet

1 PRODUCT AND COMPANY IDENTIFICATION

Product name: ECOLOSILK AXEL MARIGOLD
Intended use: paint
Manufacture:
Company name: NIPPON PAINT MARINE COATINGS CO., LTD.
Address: 2-1-2 Oyodo-kita, Kita-ku, Osaka, 531-8511 Japan
Telephone No.: +81-6-6455-9590
Facsimile No.: +81-6-6450-4085
24 hours Emergency telephone No.: +81-6-6455-9590

2 HAZARDS IDENTIFICATION

CLASSIFICATION CODE
- Flammable liquids: Category 3
- Acute toxicity - inhalation: vapour: Category 4
- Skin corrosion/irritation: Category 2
- Serious eye damage/eye irritation: Category 2
- Carcinogenicity: Category 2
- Toxic to Reproduction: Category 1B
- Specific target organ toxicity - single exposure: Category 1
- Specific target organ toxicity - repeated exposure: Category 1

Symbol

Danger
- H226 Flammable liquid and vapour
- H315 Causes skin irritation
- H319 Causes serious eye irritation
- H332 Harmful if inhaled
- H351 Suspected of causing cancer
- H360 May damage fertility or the unborn child
- H370 Causes damage to organs
- H372 Causes damage to organs through prolonged or repeated exposure

Comment
- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
- P233 Keep container tightly closed.
- P240 Ground/bond container and receiving equipment.
- P241 Use explosion-proof electrical/ventilating/lighting equipment.
3 COMPOSITION/INFORMATION ON INGREDIENTS

Substance or Preparation: Preparation.
Chemical nature: silicone resin paint

<table>
<thead>
<tr>
<th>Ingredient Name</th>
<th>CAS No.</th>
<th>Concentration[%]</th>
<th>EC No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>xylene</td>
<td>1330-20-7</td>
<td>10-15</td>
<td>215-535-7</td>
</tr>
<tr>
<td>iron hydroxide oxide</td>
<td>20344-49-4</td>
<td>1-5</td>
<td>243-746-4</td>
</tr>
<tr>
<td>ethylbenzene</td>
<td>100-41-4</td>
<td>1-5</td>
<td>202-849-4</td>
</tr>
<tr>
<td>titanium dioxide</td>
<td>13463-67-7</td>
<td>1-5</td>
<td>236-675-5</td>
</tr>
</tbody>
</table>

Notes: this product contained the following substances that present a human hazard in accordance with EC No. 1272/2008.
ML code is one of manufacturer’s own marks to control the quantity of new material for the countries that regulate the new material.

4 FIRST-AID MEASURES

Inhalation: If inhaled, remove to fresh air.
If not breathing, give artificial respiration.
If breathing is difficult, give oxygen.
Get medical attention immediately.
Skin contact: In case of contact, immediately wash skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately.

Eye contact: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. If easy to do, remove contact lenses, if worn. Get medical attention immediately. Call a physician if irritation develops and persists.

Ingestion: If swallowed, do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

5 FIRE-FIGHTING MEASURES

Do NOT use water jet. Use water spray or dry chemicals. Keep adjacent receptacles cool with copious quantities of water. Suitable fire-extinguishing media: [ ] water fog, [ ] CO2, [ ] foam, [ ] dry chemicals, [ ] dry sand.

Notes: Fire will produce dense black smoke. Decomposition products may be hazardous to health. Avoid exposure and use breathing apparatus as appropriate. Cool closed containers exposed to fire by spraying them with water. Do not allow run off water and contaminants from fire fighting to enter drains or watercourses. See section 10.

6 ACCIDENTAL RELEASE MEASURES

Avoid all sources of ignition (e.g. naked lights, unprotected light bulbs, electric handtools). Ventilate the area and avoid breathing vapors. Wear protective clothing and self-contained breathing apparatus when dealing with spillage or fire. Collect spillage, where practical, for safe disposal. Should be disposed of wastes and empty containers in accordance with regulations made under the control of pollution acts and the environmental protection acts. Collect spillage using absorbent material and dispose of spillage on the floor in a safe manner. Keep away from drains, surface- and ground-water and soil. Do not allow spillage to enter drains or water courses. Refer to headings 8 and 13.

7 HANDLING AND STORAGE

Handling:
Keep away from heat, sparks and flame. Keep container closed. The product can charge static electricity. Operators should wear non-static clothing (at least 60% natural fiber content) and anti-static clothing. Do not breathe (dust, vapor, mist, gas). Use only in a well ventilated space.
Do not get in eyes, on skin, or on clothing.
Avoid prolonged or repeated contact with skin.
Wash thoroughly after handling.
Do not ingest.
Do not eat or swallow.
Protection as shown in section 8.

Storage:
Keep container closed.
Avoid prolonged or repeated contact with skin and inhalation.
Keep away from heat, sparks and flame.
Store in a well-ventilated, dry place away from sources of heat and direct sunshine.
Do not store above 40 deg.C. (104 deg.F.).
Avoid prolonged or repeated contact with skin.
Keep locked up.
Do not ingest.
Do not eat or swallow.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Measures:  Ensure adequate ventilation during and after use to prevent vaporization.
An eye wash facility should be readily available.
Facilities storing or utilizing this material should be equipped with an eye wash facility and a safety shower.

Exposure limit:

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>EU</th>
<th>ACGIH</th>
</tr>
</thead>
<tbody>
<tr>
<td>xylene</td>
<td>50 ppm</td>
<td>100 ppm</td>
</tr>
<tr>
<td>iron hydroxide oxide</td>
<td>not est.</td>
<td>10 mg/m3</td>
</tr>
<tr>
<td>ethylbenzene</td>
<td>100 ppm</td>
<td>20 ppm</td>
</tr>
<tr>
<td>titanium dioxide</td>
<td>not est.</td>
<td>10 mg/m3</td>
</tr>
</tbody>
</table>

Notes: (RD)=respirable dust. (c)=ceiling limit. (Skin)=skin penetrative.
Mppcf=millions of particles per cubic foot.

Personal protection:
Respiratory protection: Wear appropriate equipment shown in EU directive 89/656/EC.
Hand protection: Wear impervious glove.
Eye protection: Wear chemical splash goggles and face shield when eye and face contact is possible due to splashing or spraying of material.
Skin protection: Wear chemical resistant clothing such as gloves, apron, boots or whole bodysuits made from neoprene, as appropriate.

Environmental exposure control: Do NOT let this product enter the environment.

9 PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Physical state:</th>
<th>Liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>color:</td>
<td>yellow</td>
</tr>
<tr>
<td>odor:</td>
<td>solvent odor</td>
</tr>
<tr>
<td>pH:</td>
<td>no data.</td>
</tr>
<tr>
<td>boiling point(range):</td>
<td>136 - 144[deg.C](277 - 291[deg.F])</td>
</tr>
</tbody>
</table>
flash point: 25[deg.C]/77[deg.F])
ignition temperature: 400[deg.C]/752[deg.F])
lower explosive limit: 1.1[%]
higher explosive limit: 7[%]
vapor pressure: 1333[Pa]
specific density: 1.08/23[deg.C]/73[deg.F]
vapor density: The vapor and the gas are heavier than air.
solubility in water: None or poor in water
percentage volatile: 17.7[%]

10 STABILITY AND REACTIVITY

Stability: Stable under recommended storage and handing conditions (see section 7). When exposed to high temperature, may produce hazardous decomposition products such as carbon monoxide, carbon dioxide, oxides of nitrogen and smoke.

Hazardous reaction: Hazardous reaction will not occur.

Condition to avoid: Avoid heating temperatures above 40 deg.C.

Materials to avoid: Keep away from oxidizing agents, strongly alkaline and strongly acid materials in order to avoid possible exothermic reactions.

Hazardous decomposition products: The products decomposed on heating producing their oxide or monomers.

11 TOXICOLOGICAL INFORMATION

There are no data available on the product itself.

Toxicological information of ingredients:

acute toxicity:
  ethylbenzene
    LC50(inhalation:vapour, rat)=4000[ppm/1H]
    LD50(oral, rat)=3500[mg/kg]
  xylene
    LC50(inhalation:vapour, rat)=6350[ppm/1H]
    LD50(skin, rabbit)=1700[mg/kg]
    LD50(oral, rat)=3500[mg/kg]

local effects:
  eye irritant
  ethylbenzene
  xylene
  titanium dioxide
  skin irritant
  ethylbenzene
  xylene

sensitization:
  No data.

chronically long term effect:
  xylene

specific effects
carcinogenic:
  ethylbenzene
  Carcinogenic(IARC);Class:2B
  Carcinogenic(OSHA)
Carcinogenic (CLP)
- xylene
Carcinogenic (NTP); Known to be human carcinogen
- titanium dioxide
Carcinogenic (IARC); Class: 2B
Carcinogenic (OSHA)
toxic for reproduction
- ethylbenzene
  Toxic for reproduction (CLP)
- xylene
  Toxic for reproduction (CLP)

12 ECOLOGICAL INFORMATION

For spillage or waste, take care to avoid contaminating the environment.
Prevent leakage into the sewer, waterway or legal areas to avoid pollution.
There are no data available on the product itself.

Ecological information of ingredients

persistence
- ethylbenzene biodegradable: 81-100% (2 week/ )

Data are based on "Biological and Bioaccumulation Data of Existing Chemicals Based on the CSCL Japan" Complied under the supervision of METI (MITI) Japan.

13 DISPOSAL CONSIDERATIONS

The product should not be allowed to release into the drains and watercourses.
All notification, clean-up and disposal should be carried out in accordance with European Union, governmental and local regulations
Preferred method of waste disposal are incineration or biological treatment in federal/state approved facility
Wastes and empty containers should be disposed of in accordance with regulations made under the control of pollution acts and the environmental protection acts
Empty containers should be recycled or disposed of through an approved waste management facility.
It is strongly advised not to let the chemical enter into the environment.

14 TRANSPORT INFORMATION

UN regulation

UN Shipping name: PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning or reducing compound)

UN identification number: 1263
UN Class: class 3 Flammable liquids.
UN Packaging group: III
IMDG Class: class 3.3 High flashpoint group.
storage temperature
Store below 40 deg.C. (104 deg.F.).
See section 7, Handling and storage.

15 REGULATORY INFORMATION
The information on the SDS is based on the present state of our knowledge and on current EU laws. Please refer to any other national measures that may be relevant.

16 OTHER INFORMATION

This information contained in this data sheet represents the best information currently available to us. However, no warranty is made with respect to its completeness and we assume no liability resulting from it.

It is advised to make their own tests to determinate the safety and suitability of each such product or combination for their own.

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

The product should not be used for purposes other than shown in the safety data sheet without first obtaining written advice.
1 PRODUCT AND COMPANY IDENTIFICATION

Product name: ECOLOSILK CURING AGENT
Intended use: hardener for paint
Manufacture:
   Company name: NIPPON PAINT MARINE COATINGS CO., LTD.
   Address: 2-1-2 Oyodo-kita, Kita-ku, Osaka, 531-8511 Japan
   Telephone No.: +81-6-6455-9590
   Facsimile No.: +81-6-6450-4085
   24 hours Emergency telephone No.: +81-6-6455-9590

2 HAZARDS IDENTIFICATION

Class:
   Flammable liquids: Category 3
   Acute toxicity - inhalation: vapour: Category 4
   Skin corrosion/irritation: Category 2
   Serious eye damage/eye irritation: Category 2
   Germ cell mutagenicity: Category 1B
   Carcinogenicity: Category 2
   Toxic to Reproduction: Category 1A
   Specific target organ toxicity - single exposure: Category 1, 2, 3
   Specific target organ toxicity - repeated exposure: Category 1, 2
   Chronic hazards to the aquatic environment: Category 2

Symbol:
   Danger

   H226 Flammable liquid and vapour
   H315 Causes skin irritation
   H319 Causes serious eye irritation
   H332 Harmful if inhaled
   H340 May cause generic defects
   H351 Suspected of causing cancer
   H360 May damage fertility or the unborn child
   H370 Causes damage to organs
   H372 Causes damage to organs through prolonged or repeated exposure
   H411 Toxic to aquatic life with long lasting effect
3 COMPOSITION/INFORMATION ON INGREDIENTS

Substance or Preparation: Preparation.
Chemical nature: silicone resin hardener

<table>
<thead>
<tr>
<th>Ingredient Name</th>
<th>CAS No.</th>
<th>Concentration[%]</th>
<th>EC No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>xylene</td>
<td>1330-20-7</td>
<td>45-50</td>
<td>215-535-7</td>
</tr>
<tr>
<td>ethylbenzene</td>
<td>100-41-4</td>
<td>5-10</td>
<td>202-849-4</td>
</tr>
<tr>
<td>tetraethyl silicate</td>
<td>78-10-4</td>
<td>1-5</td>
<td>201-083-8</td>
</tr>
<tr>
<td>ethanol</td>
<td>64-17-5</td>
<td>0.1-1</td>
<td>200-578-6</td>
</tr>
</tbody>
</table>

Notes: this product contained the following substances that present a human hazard in accordance with EC No. 1272/2008.
ML code is one of manufacturer's own marks to control the quantity of new material for the countries that regulate the new material.
4 FIRST-AID MEASURES

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Skin contact: In case of contact, immediately wash skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately.

Eye contact: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. If easy to do, remove contact lenses, if worn. Get medical attention immediately. Call a physician if irritation develops and persists.

Ingestion: If swallowed, do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

5 FIRE-FIGHTING MEASURES


Notes: Fire will produce dense black smoke. Decomposition products may be hazardous to health. Avoid exposure and use breathing apparatus as appropriate. Cool closed containers exposed to fire by spraying them with water. Do not allow run off water and contaminants from fire fighting to enter drains or watercourses. See section 10.

6 ACCIDENTAL RELEASE MEASURES

Avoid all sources of ignition(e.g. naked lights, unprotected light bulbs, electric handtools). Ventilate the area and avoid breathing vapors. Wear protective clothing and self-contained breathing apparatus when dealing with spillage or fire. Collect spillage, where practicable, for safe disposal. Should be disposed of wastes and empty containers in accordance with regulations made under the control of pollution acts and the environmental protection acts. Collect spillage, where practicable, using absorbent material, and dispose of spillage on the floor in a safe manner. Keep away from drains, surface- and ground-water and soil. Do not allow spills to enter drains or water courses. Refer to headings 8 and 13.
7 HANDLING AND STORAGE

Handling:
Keep away from heat, sparks, and flame.
Keep container closed.
The product may charge electro statically.
Operators should wear clothing which dose not generate static (at least 60% natural fiber) and antistatic food wear.
Do not breath (dust, vapor, mist, gas).
Use only with ventilation.
Do not get in eyes, on skin, or on clothing.
Avoid prolonged or repeated contact with skin.
Wash thoroughly after handling.
Do not take internally.
Do not taste or swallow.
Avoid release to environment.
Protection as shown in section 8.

Storage:
Keep container closed.
Avoid prolonged or repeated contact with skin and inhalation.
Keep away from heat, sparks and flame.
Store in a well-ventilated, dry place away from sources of heat and direct sunshine.
Do not store above 40 deg.C. (104 deg.F.).
Avoid prolonged or repeated contact with skin.
Keep locked up.
Do not take internally.
Do not taste or swallow.
Do not allow to environment.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Measures:  Prevent vapor build up by providing adequate ventilation during and after use.
An eye wash facility should be readily available.
The product should not be allowed to enter environment.
Facilities storing or utilizing this material should be equipped with an eye wash facility and a safety shower.

Exposure limit:

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>EU</th>
<th>ACGIH</th>
</tr>
</thead>
<tbody>
<tr>
<td>xylene</td>
<td>50 ppm</td>
<td>100 ppm</td>
</tr>
<tr>
<td>ethylbenzene</td>
<td>100 ppm</td>
<td>100 ppm</td>
</tr>
<tr>
<td>tetraethyl silicate</td>
<td>not est.</td>
<td>10 ppm</td>
</tr>
<tr>
<td>ethanol</td>
<td>not est.</td>
<td>1000 ppm</td>
</tr>
</tbody>
</table>

Notes:
(RD)=respirable dust.  ( c )=ceiling limit.  (Skin)=skin penetrative.
Mppcf=millions of particles per cubic foot.

Personal protection:
Respiratory protection: Wear appropriate equipment shown in EU directive 89/656/EC.
Hand protection: Wear impervious gloves.
Eye protection: Wear chemical splash goggles and face shield when eye and face contact is possible due to splashing or spraying of material.

Skin protection: Wear chemical resistant clothing such as gloves, apron, boots or whole bodysuits made from neoprene, as appropriate.

Environmental exposure control: Do NOT let this product enter the environment.

9 PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Physical state:</th>
<th>Liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>color:</td>
<td>colorless</td>
</tr>
<tr>
<td>odor:</td>
<td>solvent odor</td>
</tr>
<tr>
<td>pH:</td>
<td>no data.</td>
</tr>
<tr>
<td>boiling point(range):</td>
<td>136 - 144[deg.C](277 - 291[deg.F])</td>
</tr>
<tr>
<td>flash point:</td>
<td>25<a href="77%5Bdeg.F%5D">deg.C</a></td>
</tr>
<tr>
<td>ignition temperature:</td>
<td>400<a href="752%5Bdeg.F%5D">deg.C</a></td>
</tr>
<tr>
<td>lower explosive limit:</td>
<td>1.1[%]</td>
</tr>
<tr>
<td>higher explosive limit:</td>
<td>7[%]</td>
</tr>
<tr>
<td>vapor pressure:</td>
<td>1333[Pa]</td>
</tr>
<tr>
<td>specific density:</td>
<td>0.94/20<a href="68%5Bdeg.F%5D">deg.C</a></td>
</tr>
<tr>
<td>vapor density: The vapor and the gas are heavier than air.</td>
<td></td>
</tr>
<tr>
<td>solubility in water:</td>
<td>None or poor in water</td>
</tr>
<tr>
<td>percentage volatile:</td>
<td>57.5[%]</td>
</tr>
</tbody>
</table>

10 STABILITY AND REACTIVITY

Stability: Stable under recommended storage and handing conditions (see section 7).

When exposed to high temperature, may produce hazardous decomposition products such as carbon monoxide, carbon dioxide, oxides of nitrogen and smoke.

Hazardous reaction: Hazardous reaction will not occur.

Condition to avoid: Avoid heating temperatures above 40 deg.C.

Materials to avoid: Keep away from oxidizing agents, strongly alkaline and strongly acid materials in order to avoid possible exothermic reactions.

Hazardous decomposition products: The products decomposed on heating producing their oxide or monomers.

11 TOXICOLOGICAL INFORMATION

There are no data available on the product itself.

Toxicological information of ingredients:

- acute toxicity:
  - ethylbenzene
    - LC50(inhalation:vapour,rat)=4000[ppm/1H]
    - LD50(oral,rat)=3500[mg/kg]
  - xylene
    - LC50(inhalation:vapour,rat)=6700[ppm/1H]
    - LD50(oral,rat)=3500[mg/kg]

- local effects:
  - eye irritant
  - ethylbenzene
  - xylene
ethanol
tetraethyl silicate
skin irritant
ethylbenzene
xylene
tetraethyl silicate
sensitization:
No data.
chronically long term effect:
xylene
specific effects
carcinogenic:
  ethylbenzene
  Carcinogenic(IARC);Class:2B
  Carcinogenic(CLP)
toxic for reproduction
  ethylbenzene
  Toxic for reproduction(CLP)
xylene
  Toxic for reproduction(CLP)
ethanol
  Toxic for reproduction(CLP)
mutagenic:
ethanol
  Mutagenic(CLP)

12 ECOLOGICAL INFORMATION

For spills or waste, take care to avoid contaminating environment.
Prevent spills and wastewater from entering sewers, water courses or law areas to avoid pollution.
There are no data available on the product itself.
Ecological information of ingredients
persistence  ethylbenzene biodegradable:81-100%(2week/ )
Data are based on "Biological and Bioaccumulation Data of Existing Chemicals Based on the SCSL Japan" Complied under the supervision of METI(MITI) Japan.

13 DISPOSAL CONSIDERATIONS

The product should not be allowed to inter drains and watercourses.
All notification, clean-up and disposal should be carried out in accordance with European Union, governmental and local regulations
Preferred method of waste disposal are incineration or biological treatment in federal/state approved facility
Wastes and empty containers should be disposed of in accordance with regulations made under the control of pollution acts and the environmental protection acts
Empty containers should be recycled or disposed of through an approved waste management facility.
It is strongly advised not to let the chemical enter into the environment.
It may be toxic or harmful to aquatic organisms.

14 TRANSPORT INFORMATION
UN regulation

- **UN Shipping name:** RESIN SOLUTION, flammable
- **UN identification number:** 1866
- **UN Class:** class 3 Flammable liquids.
- **UN Packaging group:** III
- **IMDG Class:** class 3.3 High flashpoint group.

**storage temperature**
Store below 40 deg.C.(104deg.F.).
See section 7, Handling and storage.

**UN MARINE POLLUTANT**
MARINE POLLUTANT. Paste the label of "MARINE POLLUTANT".

---

**15 REGULATORY INFORMATION**

The information on the SDS is based on the present state of our knowledge and on current EU laws. Please refer to any other national measures that may be relevant.

---

**16 OTHER INFORMATION**

- **R20:** Harmful by inhalation
- **R36/38:** Irritating to eyes and skin
- **R39/24:** Toxic-danger of very serious irreversible effects in contact with skin.
- **R39/24/25:** Toxic-danger of very serious irreversible effects in contact with skin and if swallowed.
- **R51/53:** Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- **R60:** May impair fertility
- **R61:** May cause harm to the unborn child
- **S16:** Keep away from sources of ignition -- No smoking
- **S23:** In case of contact with eyes, rinse immediately with plenty of water and seek medical.
- **S26:** In case of contact with skin, wash immediately with plenty of WATER and SOAP.
- **S29:** Do not empty into drains.
- **S33:** Take precautionary measures against static
- **S36/37/39:** Wear suitable protective clothing and gloves and eye/face protection.
- **S37:** Wear suitable gloves
- **S45:** In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
- **S53:** Avoid exposure-obtain special instruction

This information contained in this data sheet represents the best information currently available to us. However, no warranty is made with respect to its completeness and we assume no liability resulting us from its.

It is advised to make their own tests to determinate the safety and suitability of each such product or combination for their own.

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

The product should not be used for purposes other than shown in the safety data sheet without first obtaining written advice.
Safety Data Sheet

1 PRODUCT AND COMPANY IDENTIFICATION

| Product name: | ECOLOSILK GRAY BASE |
| Intended use: | paint |
| Manufacture: |
| Company name: | NIPPON PAINT MARINE COATINGS CO., LTD. |
| Address: | 2-1-2 Oyodo-kita, Kita-ku, Osaka, 531-8511 Japan |
| Telephone No.: | +81-6-6455-9590 |
| Facsimile No.: | +81-6-6450-4085 |
| 24 hours Emergency telephone No.: | +81-6-6455-9590 |

2 HAZARDS IDENTIFICATION

<table>
<thead>
<tr>
<th>CLASSIFICATION CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammable liquids: Category 3</td>
</tr>
<tr>
<td>Acute toxicity - inhalation: vapour: Category 4</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation: Category 2</td>
</tr>
<tr>
<td>Carcinogenicity: Category 2</td>
</tr>
<tr>
<td>Toxic to Reproduction: Category 1B</td>
</tr>
<tr>
<td>Specific target organ toxicity - single exposure: Category 1, Category 2</td>
</tr>
<tr>
<td>Specific target organ toxicity - repeated exposure: Category 1</td>
</tr>
</tbody>
</table>

Symbol

Danger

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ventilating/lighting equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
3 COMPOSITION/INFORMATION ON INGREDIENTS

Substance or Preparation: Preparation.
Chemical nature: Silicone resin paint

<table>
<thead>
<tr>
<th>Ingredient Name</th>
<th>CAS No.</th>
<th>Concentration[%]</th>
<th>EC No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>xylene</td>
<td>1330-20-7</td>
<td>5-10</td>
<td>215-535-7</td>
</tr>
<tr>
<td>ethylbenzene</td>
<td>100-41-4</td>
<td>1-5</td>
<td>202-849-4</td>
</tr>
</tbody>
</table>

Notes: This product contained the following substances that present a human hazard in accordance with EC No. 1272/2008.

ML code is one of manufacturer's own marks to control the quantity of new material for the countries that regulate the new material.

4 FIRST-AID MEASURES

Inhalation: If inhaled, remove to fresh air.
If not breathing, give artificial respiration.
If breathing is difficult, give oxygen.
Get medical attention immediately.

Skin contact: In case of contact, immediately wash skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
Get medical attention immediately.

Eye contact: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.
If easy to do, remove contact lenses, if worn.
Get medical attention immediately.

Call a physician if irritation develops and persists.

**Ingestion:**

- If swallowed, do NOT induce vomiting unless directed to do so by medical personnel.
- Never give anything by mouth to an unconscious person.
- Get medical attention immediately.

---

### 5 FIRE-FIGHTING MEASURES

- **Do NOT use water jet.**
- Use water spray or dry chemicals.
- Keep adjacent receptacles cool with copious quantities of water.
- Use suitable fire-extinguishing media:
  - [OK] water fog,
  - [OK] CO2,
  - [OK] foam,
  - [OK] dry chemicals,
  - [OK] dry sand.
- **Notes:** Fire will produce dense black smoke.
- Decomposition products may be hazardous to health.
- Avoid exposure and use breathing apparatus as appropriate.
- Cool closed containers exposed to fire by spraying them with water.
- Do not allow run off water and contaminants from fire fighting to enter drains or watercourses.
- See section 10.

---

### 6 ACCIDENTAL RELEASE MEASURES

- Avoid all sources of ignition (e.g. naked lights, unprotected light bulbs, electric handtools).
- Ventilate the area and avoid breathing vapors.
- Wear protective clothing and self-contained breathing apparatus when dealing with spillage or fire.
- Collect spillage, where practicable, for safe disposal.
- Should be disposed of wastes and empty containers in accordance with regulations made under the control of pollution acts and the environmental protection acts.
- Collect spillage, where practicable, using absorbent material, and dispose of spillage on the floor in a safe manner.
- Keep away from drains, surface- and ground-water and soil.
- Do not allow spills to enter drains or water courses.
- Refer to headings 8 and 13.

---

### 7 HANDLING AND STORAGE

**Handling:**

- Keep away from heat, sparks, and flame.
- Keep container closed.
- The product may charge electro statically.
- Operators should wear clothing which does not generate static (at least 60% natural fiber) and antistatic food wear.
- Do not breathe (dust, vapor, mist, gas).
- Use only with ventilation.
- Do not get in eyes, on skin, or on clothing.
- Avoid prolonged or repeated contact with skin.
- Wash thoroughly after handling.
- Do not take internally.
- Do not taste or swallow.
Protection as shown in section 8.

Storage:
- Keep container closed.
- Avoid prolonged or repeated contact with skin and inhalation.
- Keep away from heat, sparks and flame.
- Store in a well-ventilated, dry place away from sources of heat and direct sunshine.
- Do not store above 40 deg.C. (104 deg.F.).
- Avoid prolonged or repeated contact with skin.
- Keep locked up.
- Do not take internally.
- Do not taste or swallow.

8 EXPOSURE CONTROLS/PERSOANL PROTECTION

Engineering Measures:
- Prevent vapor build up by providing adequate ventilation during and after use.
- An eye wash facility should be readily available.
- Facilities storing or utilizing this material should be equipped with an eye wash facility and a safety shower.

Exposure limit:

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>EU TLV(TWA)</th>
<th>ACGIH TLV(TWA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>xylene</td>
<td>50 ppm</td>
<td>100 ppm</td>
</tr>
<tr>
<td>ethylbenzene</td>
<td>100 ppm</td>
<td>100 ppm</td>
</tr>
</tbody>
</table>

Notes: (RD)=respirable dust. (c)=ceiling limit. (Skin)=skin penetrative.
Mppcf=millions of particles per cubic foot.

Personal protection:
- Respiratory protection: Wear appropriate equipment shown in EU directive 89/656/EC.
- Hand protection: Wear impervious gloves.
- Eye protection: Wear chemical splash goggles and face shield when eye and face contact is possible due to splashing or spraying of material.
- Skin protection: Wear chemical resistant clothing such as gloves, apron, boots or whole bodysuits made from neoprene, as appropriate.

Environmental exposure control: Do NOT let this product enter the environment.

9 PHYSICAL AND CHEMICAL PROPERTIES

- Physical state: Liquid
- Color: gray
- Odor: solvent odor
- pH: no data.
- Boiling point(range): 136 - 144[deg.C](277 - 291[deg.F])
- Flash point: 25[deg.C](77[deg.F])
- Ignition temperature: 400[deg.C](752[deg.F])
- Lower explosive limit: 1.1[%]
- Higher explosive limit: 7[%]
- Vapor pressure: 1333[Pa]
- Specific density: 1.05/20[deg.C](68[deg.F])
- Vapor density: The vapor and the gas are heavier than air.
solubility in water: None or poor in water
percentage volatile: 10.6[%]

10 STABILITY AND REACTIVITY

Stability: Stable under recommended storage and handling conditions (see section 7).
When exposed to high temperature, may produce hazardous decomposition products such as carbon monoxide, carbon dioxide, oxides of nitrogen and smoke.

Hazardous reaction: Hazardous reaction will not occur.
Condition to avoid: Avoid heating temperatures above 40 deg.C.
Materials to avoid: Keep away from oxidizing agents, strongly alkaline and strongly acid materials in order to avoid possible exothermic reactions.

Hazardous decomposition products: The products decomposed on heating producing their oxide or monomers.

11 TOXICOLOGICAL INFORMATION

There are no data available on the product itself.

Toxicological information of ingredients:
acute toxicity:
  ethylbenzene
  LC50(inhalation:vapour, rat)=4000[ppm/1H]
  LD50(oral, rat)=3500[mg/kg]
  xylene
  LC50(inhalation:vapour, rat)=6700[ppm/1H]
  LD50(oral, rat)=3500[mg/kg]
local effects:
  eye irritant
  ethylbenzene
  xylene
  skin irritant
  ethylbenzene
  xylene
sensitization:
  No data.
chronically long term effect:
  xylene
specific effects
  carcinogenic:
    ethylbenzene
    Carcinogenic(IARC);Class:2B
    Carcinogenic(CLP)
toxic for reproduction
  ethylbenzene
    Toxic for reproduction(CLP)
  xylene
    Toxic for reproduction(CLP)

12 ECOLOGICAL INFORMATION
For spills or waste, take care to avoid contaminating environment.
Prevent spills and wastewater from entering sewers, water courses or law areas to avoid pollution.
There are no data available on the product itself.
Ecological information of ingredients
persistence ethylbenzene biodegradable:81-100%/2week/
Data are based on "Biological and Bioaccumulation Data of Existing Chemicals Based on the SCSL Japan" Complied under the supervision of METI(MITI) Japan.

13 DISPOSAL CONSIDERATIONS
The product should not be allowed to inter drains and watercourses.
All notification, clean-up and disposal should be carried out in accordance with European Union, governmental and local regulations
Preferred method of waste disposal are incineration or biological treatment in federal/state approved facility
Wastes and empty containers should be disposed of in accordance with regulations made under the control of pollution acts and the environmental protection acts
Empty containers should be recycled or disposed of through an approved waste management facility.
It is strongly advised not to let the chemical enter into the environment.

14 TRANSPORT INFORMATION
UN regulation
UN Shipping name: PAINT(including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning or reducing compound)
UN identification number: 1263
UN Class: class 3 Flammable liquids.
UN Packaging group: III
IMDG Class: class 3.3 High flashpoint group.
storage temperature Store below 40 deg.C.(104deg.F.).
See section 7,Handling and storage.

15 REGULATORY INFORMATION
The information on the SDS is based on the present state of our knowledge and on current EU laws.
Please refer to any other national measures that may be relevant.

16 OTHER INFORMATION
R20:Harmful by inhalation
R36:Irritating to eyes
R39/24:Toxic-danger of very serious irreversible effects in contact with skin.
R39/24/25:Toxic-danger of very serious irreversible effects in contact with skin and if swallowed.
R40:Possible risk of irreversible effects
R60:May impair fertility
R61:May cause harm to the unborn child
S16:Keep away from sources of ignition -- No smoking
S23: Do not breathe gas/fumes/vapor/spray (appropriate wording to be specified by the manufacturer).
S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical.
S28: After contact with skin, wash immediately with plenty of WATER and SOAP.
S33: Take precautionary measures against static
S36/37/39: Wear suitable protective clothing and gloves and eye/face protection.
S45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S53: Avoid exposure - obtain special instruction
This information contained in this data sheet represents the best information currently available to us. However, no warranty is made with respect to its completeness and we assume no liability resulting from its.
It is advised to make their own tests to determinate the safety and suitability of each such product or combination for their own.
Ensure this material in compliance with federal requirements and ensure conformity to local regulations.
The product should not be used for purposes other than shown in the safety data sheet without first obtaining written advice.
1 PRODUCT AND COMPANY IDENTIFICATION

Product name: ECOLOSILK TIE COAT ADDITIVE
Intended use: additive

Manufacture:
Company name: NIPPON PAINT MARINE COATINGS CO., LTD.
Address: 2-1-2 Oyodo-kita, Kita-ku, Osaka, 531-8511 Japan
Telephone No.: +81-6-6455-9590
Facsimile No.: +81-6-6450-4085
24 hours Emergency telephone No.: +81-6-6455-9590

2 HAZARDS IDENTIFICATION

CLASSIFICATION CODE
Flammable liquids: Category 2
Acute toxicity - inhalation: vapour: Category 4
Skin corrosion/irritation: Category 2
Serious eye damage/eye irritation: Category 2
Carcinogenicity: Category 2
Toxic to Reproduction: Category 1A
Toxic to Reproduction - Effects on or via lactation: Additional category on effects on or via lactation
Specific target organ toxicity - single exposure: Category 1, Category 3
Specific target organ toxicity - repeated exposure: Category 1
Chronic hazards to the aquatic environment: Category 2

Symbol
Danger
H225 Highly flammable liquid and vapour
H315 Causes skin irritation
H319 Causes serious eye irritation
H332 Harmful if inhaled
H351 Suspected of causing cancer
H360 May damage fertility or the unborn child
H362 May cause harm to breast-fed children
H370 Causes damage to organs
H372 Causes damage to organs through prolonged or repeated exposure
H411 Toxic to aquatic life with long lasting effect
3 COMPOSITION/INFORMATION ON INGREDIENTS

Substance or Preparation: Preparation.
Chemical nature: Polyolefin chloride resin solution

<table>
<thead>
<tr>
<th>Ingredient Name</th>
<th>CAS No.</th>
<th>Concentration [%]</th>
<th>EC No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>xylene</td>
<td>1330-20-7</td>
<td>60-65</td>
<td>215-535-7</td>
</tr>
<tr>
<td>ethylbenzene</td>
<td>100-41-4</td>
<td>10-15</td>
<td>202-849-4</td>
</tr>
<tr>
<td>toluene</td>
<td>108-88-3</td>
<td>10-15</td>
<td>203-625-9</td>
</tr>
<tr>
<td>dibutyltin dilaurate</td>
<td>77-58-7</td>
<td>0.1-1</td>
<td>201-039-8</td>
</tr>
</tbody>
</table>

Notes: This product contained the following substances that present a human hazard in accordance with EC No. 1272/2008.

ML code is one of manufacturer’s own marks to control the quantity of new material for the countries that regulate the new material.
4 FIRST-AID MEASURES

Inhalation:  If inhaled, remove to fresh air.
If not breathing, give artificial respiration.
If breathing is difficult, give oxygen.
Get medical attention immediately.

Skin contact: In case of contact, immediately wash skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
Get medical attention immediately.

Eye contact: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.
If easy to do, remove contact lenses, if worn.
Get medical attention immediately.
Call a physician if irritation develops and persists.

Ingestion: If swallowed, do NOT induce vomiting unless directed to do so by medical personnel.
Never give anything by mouth to an unconscious person.
Get medical attention immediately.

5 FIRE-FIGHTING MEASURES

Do NOT use water jet.
Use water spray or dry chemicals.
Keep adjacent receptacles cool with copious quantities of water.
suitable fire-extinguishing media


Notes: Fire will produce dense black smoke.
Decomposition products may be hazardous to health.
Avoid exposure and use breathing apparatus as appropriate.
Cool closed containers exposed to fire by spraying them with water.
Do not allow run off water and contaminants from fire fighting to enter drains or watercourses.
See section 10.

6 ACCIDENTAL RELEASE MEASURES

Avoid all sources of ignition (e.g. naked lights, unprotected light bulbs, electric handtools).
Ventilate the area and avoid breathing vapors.
Wear protective clothing and self-contained breathing apparatus when dealing with spillage or fire.
Collect spillage, where practical, for safe disposal.
Should be disposed of wastes and empty containers in accordance with regulations made under the control of pollution acts and the environmental protection acts.
Collect spillage using absorbent material and dispose of spillage on the floor in a safe manner.
Keep away from drains, surface- and ground-water and soil.
Do not allow spillage to enter drains or water courses.
Refer to headings 8 and 13.

7 HANDLING AND STORAGE
Handling:

- Keep away from heat, sparks and flame.
- Keep container closed.
- The product can charge static electricity.
- Operators should wear non-static clothing (at least 60% natural fiber content) and anti-static clothing.
- Do not breath (dust, vapor, mist, gas).
- Use only in a well ventilated space.
- Do not get in eyes, on skin, or on clothing.
- Avoid prolonged or repeated contact with skin.
- Wash thoroughly after handling.
- Do not ingest.
- Do not eat or swallow.
- Avoid release to the environment.
- Protection as shown in section 8.

Storage:

- Keep container closed.
- Avoid prolonged or repeated contact with skin and inhalation.
- Keep away from heat, sparks and flame.
- Store in a well-ventilated, dry place away from sources of heat and direct sunshine.
- Do not store above 40 deg.C. (104 deg.F.).
- Avoid prolonged or repeated contact with skin.
- Keep locked up.
- Do not ingest.
- Do not eat or swallow.
- Avoid release to the environment.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Measures:

- Ensure adequate ventilation during and after use to prevent vaporization.
- An eye wash facility should be readily available.
- The product should not be allowed to enter the environment.
- Facilities storing or utilizing this material should be equipped with an eye wash facility and a safety shower.

Exposure limit:

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>EU TLV(TWA)</th>
<th>ACGIH TLV(TWA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>xylene</td>
<td>50 ppm</td>
<td>100 ppm</td>
</tr>
<tr>
<td>ethylbenzene</td>
<td>100 ppm</td>
<td>20 ppm</td>
</tr>
<tr>
<td>toluene</td>
<td>not est.</td>
<td>20 ppm</td>
</tr>
<tr>
<td>dibutyltin dilaurate</td>
<td>not est.</td>
<td>0.1(Sn) mg/m3</td>
</tr>
</tbody>
</table>

Notes: (RD)=respirable dust. (c)=ceiling limit. (Skin)=skin penetrative. Mppcf=millions of particles per cubic foot.

Personal protection:

- Respiratory protection: Wear appropriate equipment shown in EU directive 89/656/EC.
- Hand protection: Wear impervious glove.
- Eye protection: Wear chemical splash goggles and face shield when eye and face contact is possible due to splashing or spraying of material.
- Skin protection: Wear chemical resistant clothing such as gloves, apron, boots or whole bodysuits made from neoprene, as appropriate.
Environmental exposure control: Do NOT let this product enter the environment.

### 9 PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Color</td>
<td>Colorless or pale yellow</td>
</tr>
<tr>
<td>Odor</td>
<td>Solvent odor</td>
</tr>
<tr>
<td>pH</td>
<td>No data</td>
</tr>
<tr>
<td>Boiling point (range)</td>
<td>111 - 259[deg.C] (232 - 498[deg.F])</td>
</tr>
<tr>
<td>Flash point</td>
<td>4[deg.C] (39.2[deg.F])</td>
</tr>
<tr>
<td>Ignition temperature</td>
<td>300[deg.C] (572[deg.F])</td>
</tr>
<tr>
<td>Lower explosive limit</td>
<td>1.1[%]</td>
</tr>
<tr>
<td>Higher explosive limit</td>
<td>7[%]</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>4893[Pa]</td>
</tr>
<tr>
<td>Specific density</td>
<td>0.89/23[deg.C] (73[deg.F])</td>
</tr>
<tr>
<td>Vapor density</td>
<td>The vapor and the gas are heavier than air.</td>
</tr>
<tr>
<td>Solubility in water</td>
<td>None or poor in water</td>
</tr>
<tr>
<td>Percentage volatile</td>
<td>88.4[%]</td>
</tr>
</tbody>
</table>

### 10 STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stability</td>
<td>Stable under recommended storage and handing conditions (see section 7). When exposed to high temperature, may produce hazardous decomposition products such as carbon monoxide, carbon dioxide, oxides of nitrogen and smoke.</td>
</tr>
<tr>
<td>Hazardous reaction</td>
<td>Hazardous reaction will not occur.</td>
</tr>
<tr>
<td>Condition to avoid</td>
<td>Avoid heating temperatures above 40 deg.C.</td>
</tr>
<tr>
<td>Materials to avoid</td>
<td>Keep away from oxidizing agents, strongly alkaline and strongly acid materials in order to avoid possible exothermic reactions.</td>
</tr>
<tr>
<td>Hazardous decomposition products</td>
<td>The products decomposed on heating producing their oxide or monomers.</td>
</tr>
</tbody>
</table>

### 11 TOXICOLOGICAL INFORMATION

There are no data available on the product itself. Toxicological information of ingredients:

#### Acute toxicity:
- Ethylbenzene
  - LC50 (inhalation: vapour, rat) = 4000 ppm/1H
  - LD50 (oral, rat) = 3500 mg/kg
- Toluene
  - LC50 (inhalation: vapour, rat) = 4000 ppm/1H
  - LD50 (oral, rat) = 5000 mg/kg
- Xylene
  - LC50 (inhalation: vapour, rat) = 6350 ppm/1H
  - LD50 (oral, rat) = 3500 mg/kg
- Dibutyltin dilaurate
  - LC50 (inhalation: dust, mist, rat) = 0.075 mg/L/1H
  - LD50 (skin, rabbit) = 1700 mg/kg
  - LD50 (oral, rat) = 175 mg/kg
local effects:
  eye irritant
  ethylbenzene
toluene
  xylene
dibutyltin dilaurate
skin irritant
  ethylbenzene
toluene
  xylene
dibutyltin dilaurate
sensitization:
  No data.
chronically long term effect:
toluene
  xylene
specific effects
carcinogenic:
  ethylbenzene
    Carcinogenic(IARC);Class:2B
    Carcinogenic(OSHA)
    Carcinogenic(CLP)
toluene
    Carcinogenic(NTP);Known to be human carcinogen
xylene
    Carcinogenic(NTP);Known to be human carcinogen
toxic for reproduction
  ethylbenzene
    Toxic for reproduction(CLP)
toluene
    Toxic for reproduction(CLP)
xylene
    Toxic for reproduction(CLP)
dibutyltin dilaurate
    Toxic for reproduction(CLP)

12 ECOLOGICAL INFORMATION

For spillage or waste, take care to avoid contaminating the environment.
Prevent leakage into the sewer, waterway or legal areas to avoid pollution.
There are no data available on the product itself.
Ecological information of ingredients

| acute toxicity | toluene TLM(24,96h,fish)=10-60mg/L |
| persistence    | ethylbenzene biodegradable:81-100%(2week/ ) |
|               | toluene biodegradable:100%(2week/ ) |

Data are based on "Biological and Bioaccumulation Data of Existing Chemicals Based on the CSCL Japan" Complied under the supervision of METI(MITI) Japan.

13 DISPOSAL CONSIDERATIONS
The product should not be allowed to release into the drains and watercourses.
All notification, clean-up and disposal should be carried out in accordance with European Union, governmental and local regulations
Preferred method of waste disposal are incineration or biological treatment in federal/state approved facility
Wastes and empty containers should be disposed of in accordance with regulations made under the control of pollution acts and the environmental protection acts
Empty containers should be recycled or disposed of through an approved waste management facility.
It is strongly advised not to let the chemical enter into the environment.
It may be toxic or harmful to aquatic organisms.

14 TRANSPORT INFORMATION

<table>
<thead>
<tr>
<th>UN regulation</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>UN Shipping name:</td>
<td>PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning or reducing compound)</td>
</tr>
<tr>
<td>UN identification number:</td>
<td>1263</td>
</tr>
<tr>
<td>UN Class:</td>
<td>class 3 Flammable liquids.</td>
</tr>
<tr>
<td>UN Packaging group:</td>
<td>II</td>
</tr>
<tr>
<td>IMDG Class:</td>
<td>class 3.2 Intermediate flashpoint group.</td>
</tr>
<tr>
<td>storage temperature</td>
<td>Store below 40 deg.C. (104 deg.F.).</td>
</tr>
<tr>
<td></td>
<td>See section 7, Handling and storage.</td>
</tr>
<tr>
<td>UN MARINE POLLUTANT</td>
<td>MARINE POLLUTANT. Paste the label of &quot;MARINE POLLUTANT&quot;.</td>
</tr>
</tbody>
</table>

15 REGULATORY INFORMATION

The information on the SDS is based on the present state of our knowledge and on current EU laws. Please refer to any other national measures that may be relevant.

16 OTHER INFORMATION

This information contained in this data sheet represents the best information currently available to us. However, no warranty is made with respect to its completeness and we assume no liability resulting from it.
It is advised to make their own tests to determinate the safety and suitability of each such product or combination for their own.
Ensure this material in compliance with federal requirements and ensure conformity to local regulations.
The product should not be used for purposes other than shown in the safety data sheet without first obtaining written advice.
Safety Data Sheet

1 PRODUCT AND COMPANY IDENTIFICATION

Product name: ECOLOSILK TIE COAT CURING AGENT
Intended use: hardener for paint
Manufacture:
Company name: NIPPON PAINT MARINE COATINGS CO., LTD.
Address: 2-1-2 Oyodo-kita, Kita-ku, Osaka, 531-8511 Japan
Telephone No.: +81-6-6455-9590
Facsimile No.: +81-6-6450-4085
24 hours Emergency telephone No.: +81-6-6455-9590

2 HAZARDS IDENTIFICATION

CLASSIFICATION CODE
Flammable liquids: Category 3
Acute toxicity - inhalation: vapour: Category 4
Serious eye damage/eye irritation: Category 2
Carcinogenicity: Category 1A
Specific target organ toxicity - single exposure: Category 1, Category 3
Specific target organ toxicity - repeated exposure: Category 1, Category 2

Symbol
Danger
Hazard statement
H226 Flammable liquid and vapour
H319 Causes serious eye irritation
H332 Harmful if inhaled
H350 May cause cancer
H370 Causes damage to organs
H372 Causes damage to organs through prolonged or repeated exposure

Comment
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ventilating/lighting equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P264 Wash hands, mouth etc. thoroughly after handling.
3 COMPOSITION/INFORMATION ON INGREDIENTS

Substance or Preparation: Preparation.
Chemical nature: silicone resin hardener

<table>
<thead>
<tr>
<th>Ingredient Name</th>
<th>CAS No.</th>
<th>Concentration[%]</th>
<th>EC No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-methylhexan-2-one; isoamyl methyl ketone</td>
<td>110-12-3</td>
<td>20-25</td>
<td>203-737-8</td>
</tr>
<tr>
<td>silica, crystalline, quarz</td>
<td>14808-60-7</td>
<td>10-15</td>
<td>238-878-4</td>
</tr>
<tr>
<td>titanium dioxide</td>
<td>13463-67-7</td>
<td>1-5</td>
<td>236-675-5</td>
</tr>
</tbody>
</table>

Notes: this product contained the following substances that present a human hazard in accordance with EC No. 1272/2008.
ML code is one of manufacturer's own marks to control the quantity of new material for the countries that regulate the new material.

4 FIRST-AID MEASURES

Inhalation: If inhaled, remove to fresh air.
If not breathing, give artificial respiration.
If breathing is difficult, give oxygen.
Get medical attention immediately.

Skin contact: In case of contact, immediately wash skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
Get medical attention immediately.

Eye contact: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.
If easy to do, remove contact lenses, if worn.
Get medical attention immediately.
Call a physician if irritation develops and persists.

Ingestion:
If swallowed, do NOT induce vomiting unless directed to do so by medical personnel.
Never give anything by mouth to an unconscious person.
Get medical attention immediately.

## 5 FIRE-FIGHTING MEASURES

- Do NOT use water jet.
- Use water spray or dry chemicals.
- Keep adjacent receptacles cool with copious quantities of water.

**Notes:**
- Fire will produce dense black smoke.
- Decomposition products may be hazardous to health.
- Avoid exposure and use breathing apparatus as appropriate.
- Cool closed containers exposed to fire by spraying them with water.
- Do not allow run off water and contaminants from fire fighting to enter drains or watercourses.
- See section 10.

## 6 ACCIDENTAL RELEASE MEASURES

- Avoid all sources of ignition (e.g., naked lights, unprotected light bulbs, electric handtools).
- Ventilate the area and avoid breathing vapors.
- Wear protective clothing and self-contained breathing apparatus when dealing with spillage or fire.
- Collect spillage, where practicable, for safe disposal.
- Should be disposed of wastes and empty containers in accordance with regulations made under the control of pollution acts and the environmental protection acts.
- Collect spillage, where practicable, using absorbent material, and dispose of spillage on the floor in a safe manner.
- Keep away from drains, surface- and ground-water and soil.
- Do not allow spills to enter drains or water courses.
- Refer to headings 8 and 13.

## 7 HANDLING AND STORAGE

**Handling:**
- Keep away from heat, sparks, and flame.
- Keep container closed.
- The product may charge electrostatically.
- Operators should wear clothing which does not generate static (at least 60% natural fiber) and antistatic food wear.
- Do not breath (dust, vapor, mist, gas).
- Use only with ventilation.
- Do not get in eyes, on skin, or on clothing.
- Avoid prolonged or repeated contact with skin.
- Wash thoroughly after handling.
- Do not take internally.
- Do not taste or swallow.
Protection as shown in section 8.

Storage:
- Keep container closed.
- Avoid prolonged or repeated contact with skin and inhalation.
- Keep away from heat, sparks and flame.
- Store in a well-ventilated, dry place away from sources of heat and direct sunshine.
- Do not store above 40 deg.C. (104 deg.F.).
- Avoid prolonged or repeated contact with skin.
- Keep locked up.
- Do not take internally.
- Do not taste or swallow.

8 EXPOSURE CONTROLS/PERSPECTEAL PROTECTION

Engineering Measures:
- Prevent vapor build up by providing adequate ventilation during and after use.
- An eye wash facility should be readily available.
- Facilities storing or utilizing this material should be equipped with an eye wash facility and a safety shower.

Exposure limit:

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>EU TLV(TWA)</th>
<th>ACGIH TLV(TWA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-methylhexan-2-one; isoamyl methyl ketone</td>
<td>20 ppm</td>
<td>50 ppm</td>
</tr>
<tr>
<td>silica, crystalline, quarz</td>
<td>not est.</td>
<td>0.025 mg/m³</td>
</tr>
<tr>
<td>titanium dioxide</td>
<td>not est.</td>
<td>10 mg/m³</td>
</tr>
</tbody>
</table>

Notes:
- (RD)=respirable dust. (c)=ceiling limit. (Skin)=skin penetrative.
- Mppcf=millions of particles per cubic foot.

Personal protection:
- Respiratory protection: Wear appropriate equipment shown in EU directive 89/656/EC.
- Hand protection: Wear impervious gloves.
- Eye protection: Wear chemical splash goggles and face shield when eye and face contact is possible due to splashing or spraying of material.
- Skin protection: Wear chemical resistant clothing such as gloves, apron, boots or whole bodysuits made from neoprene, as appropriate.

Environmental exposure control: Do NOT let this product enter the environment.

9 PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Physical state:</th>
<th>Liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>color:</td>
<td>white</td>
</tr>
<tr>
<td>odor:</td>
<td>solvent odor</td>
</tr>
<tr>
<td>pH:</td>
<td>no data.</td>
</tr>
<tr>
<td>boiling point(range):</td>
<td>144 - 259[deg.C](291 - 498[deg.F])</td>
</tr>
<tr>
<td>flash point:</td>
<td>36<a href="96.8%5Bdeg.F%5D">deg.C</a></td>
</tr>
<tr>
<td>ignition temperature:</td>
<td>300<a href="572%5Bdeg.F%5D">deg.C</a></td>
</tr>
<tr>
<td>lower explosive limit:</td>
<td>no data.</td>
</tr>
<tr>
<td>higher explosive limit:</td>
<td>no data.</td>
</tr>
<tr>
<td>vapor pressure:</td>
<td>1.3[Pa]</td>
</tr>
<tr>
<td>specific density:</td>
<td>0.98/20<a href="68%5Bdeg.F%5D">deg.C</a></td>
</tr>
</tbody>
</table>
vapor density: The vapor and the gas are heavier than air.
solubility in water: None or poor in water
percentage volatile: 24.5[%]

10 STABILITY AND REACTIVITY

Stability: Stable under recommended storage and handing conditions (see section 7). When exposed to high temperature, may produce hazardous decomposition products such as carbon monoxide, carbon dioxide, oxides of nitrogen and smoke.

Hazardous reaction: Hazardous reaction will not occur.
Condition to avoid: Avoid heating temperatures above 40 deg.C.
Materials to avoid: Keep away from oxidizing agents, strongly alkaline and strongly acid materials in order to avoid possible exothermic reactions.

Hazardous decomposition products: The products decomposed on heating producing their oxide or monomers.

11 TOXICOLOGICAL INFORMATION

There are no data available on the product itself.
Toxicological information of ingredients:

acute toxicity:
5-methylhexan-2-one; isoamyl methyl ketone
LC50(inhalation:vapour,rat)=4662[ppm/1H]
LD50(oral,rat)=2815[mg/kg]

local effects:
eye irritant
5-methylhexan-2-one; isoamyl methyl ketone

sensitization:
No data.
chronically long term effect:
silica, crystalline, quarz
specific effects
carcinogenic:
titanium dioxide
Carcinogenic(IARC);Class:2B
silica, crystalline, quarz
Carcinogenic(IARC);Class:1
Carcinogenic(NTP);Known to be human carcinogen
Carcinogenic(NTP);Reasonably anticipated to be human carcinogen

12 ECOLOGICAL INFORMATION

For spills or waste, take care to avoid contaminating environment.
Prevent spills and wastewater from entering sewers, water courses or law areas to avoid pollution.
There are no data available on the product itself.
13 DISPOSAL CONSIDERATIONS

The product should not be allowed to inter drains and watercourses.
All notification, clean-up and disposal should be carried out in accordance with European Union,
governmental and local regulations
Preferred method of waste disposal are incineration or biological treatment in federal/state approved
facility
Wastes and empty containers should be disposed of in accordance with regulations made under the
control of pollution acts and the environmental protection acts
Empty containers should be recycled or disposed of through an approved waste management facility.
It is strongly advised not to let the chemical enter into the environment.

14 TRANSPORT INFORMATION

UN regulation
UN Shipping name: PAINT(including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler
and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning
or reducing compound)
UN identification number: 1263
UN Class: class 3 Flammable liquids.
UN Packaging group: III
IMDG Class: class 3.3 High flashpoint group.
storage temperature Store below 40 deg. C.(104deg.F.).
See section 7, Handling and storage.

15 REGULATORY INFORMATION

The information on the SDS is based on the present state of our knowledge and on current EU laws.
Please refer to any other national measures that may be relevant.

16 OTHER INFORMATION

R20: Harmful by inhalation
R36: Irritating to eyes
R39/24: Toxic-danger of very serious irreversible effects in contact with skin.
R39/24/25: Toxic-danger of very serious irreversible effects in contact with skin and if swallowed.
R45: May cause cancer
R49: May cause cancer by inhalation
S16: Keep away from sources of ignition— No smoking
S23: Do not breathe gas/fumes/vapor/spray (appropriate wording to be specified by the manufacturer).
S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical.
S28: After contact with skin, wash immediately with plenty of WATER and SOAP.
S33: Take precautionary measures against static
S36/37/39: Wear suitable protective clothing and gloves and eye/face protection.
S45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where
possible).
S53: Avoid exposure—obtain special instruction
This information contained in this data sheet represents the best information currently available to us.
However, no warranty is made with respect to its completeness and we assume no liability resulting us
from its.
It is advised to make their own tests to determinate the safety and suitability of each such product or combination for their own.

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

The product should not be used for purposes other than shown in the safety data sheet without first obtaining written advice.
1 PRODUCT AND COMPANY IDENTIFICATION

Product name: ECOLOSILK TIE COAT LIGHT GRAY BASE
Intended use: paint
Manufacture:
Company name: NIPPON PAINT MARINE COATINGS CO., LTD.
Address: 2-1-2 Oyodo-kita, Kita-ku, Osaka, 531-8511 Japan
Telephone No.: +81-6-6455-9590
Facsimile No.: +81-6-6450-4085
24 hours Emergency telephone No.: +81-6-6455-9590

2 HAZARDS IDENTIFICATION

Classifcation Code
- Flammable liquids: Category 3
- Acute toxicity - inhalation: vapour: Category 4
- Serious eye damage/eye irritation: Category 2
- Carcinogenicity: Category 2
- Toxic to Reproduction: Category 1B
- Specific target organ toxicity - single exposure: Category 3
- Specific target organ toxicity - repeated exposure: Category 2

Symbol
Danger
H226 Flammable liquid and vapour
H319 Causes serious eye irritation
H332 Harmful if inhaled
H335 May cause respiratory irritation
H336 May cause drowsiness or dizziness
H351 Suspected of causing cancer
H360 May damage fertility or the unborn child
H373 May cause damage to organs through prolonged or repeated exposure

Comment
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ventilating/lighting equipment.
P242 Use only non-sparking tools.
3 COMPOSITION/INFORMATION ON INGREDIENTS

Substance or Preparation: Preparation.
Chemical nature: Silicone resin paint

<table>
<thead>
<tr>
<th>Ingredient Name</th>
<th>CAS No.</th>
<th>Concentration[%]</th>
<th>EC No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-methylhexan-2-one; isoamyl methyl ketone</td>
<td>110-12-3</td>
<td>20-25</td>
<td>203-737-8</td>
</tr>
<tr>
<td>titanium dioxide</td>
<td>13463-67-7</td>
<td>10-15</td>
<td>236-675-5</td>
</tr>
<tr>
<td>xylene</td>
<td>1330-20-7</td>
<td>0.1-1</td>
<td>215-535-7</td>
</tr>
<tr>
<td>ethylbenzene</td>
<td>100-41-4</td>
<td>0.1-1</td>
<td>202-849-4</td>
</tr>
</tbody>
</table>

Notes: this product contained the following substances that present a human hazard in accordance with EC No. 1272/2008.

ML code is one of manufacturer's own marks to control the quantity of new material for the countries that regulate the new material.

4 FIRST-AID MEASURES

Inhalation:  If inhaled, remove to fresh air.
If not breathing, give artificial respiration.
If breathing is difficult, give oxygen.
Get medical attention immediately.

Skin contact:  In case of contact, immediately wash skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
Get medical attention immediately.
Eye contact: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.
If easy to do, remove contact lenses, if worn.
Get medical attention immediately.
Call a physician if irritation develops and persists.

Ingestion: If swallowed, do NOT induce vomiting unless directed to do so by medical personnel.
Get medical attention immediately.

5 FIRE-FIGHTING MEASURES

Do NOT use water jet.
Use water spray or dry chemicals.
Keep adjacent receptacles cool with copious quantities of water.

suitable fire-extinguishing media

Notes: Fire will produce dense black smoke.
Decomposition products may be hazardous to health.
Avoid exposure and use breathing apparatus as appropriate.
Cool closed containers exposed to fire by spraying them with water.
Do not allow run off water and contaminants from fire fighting to enter drains or watercourses.
See section 10.

6 ACCIDENTAL RELEASE MEASURES

Avoid all sources of ignition(e.g.naked lights, unprotected light bulbs,electric handtools).
Ventilate the area and avoid breathing vapors.
Wear protective clothing and self-contained breathing apparatus when dealing with spillage or fire.
Collect spillage, where practicable, for safe disposal.
Should be disposed of wastes and empty containers in accordance with regulations made under the control of pollution acts and the environmental protection acts.
Collect spillage, where practicable, using absorbent material, and dispose of spillage on the floor in a safe manner.
Keep away from drains,surface- and ground-water and soil.
Do not allow spills to enter drains or water courses.
Refer to headings 8 and 13.

7 HANDLING AND STORAGE

Handling:
Keep away from heat, sparks, and flame.
Keep container closed.
The product may charge electro statically.
Operators should wear clothing which dose not generate static (at least 60% natural fiber) and antistatic food wear.
Do not breath (dust, vapor, mist, gas).
Use only with ventilation.
Do not get in eyes, on skin, or on clothing.
Avoid prolonged or repeated contact with skin.
Wash thoroughly after handling.
Protection as shown in section 8.
Storage:
- Keep container closed.
- Avoid prolonged or repeated contact with skin and inhalation.
- Keep away from heat, sparks and flame.
- Store in a well-ventilated, dry place away from sources of heat and direct sunshine.
- Do not store above 40 deg.C. (104 deg.F.).
- Avoid prolonged or repeated contact with skin.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Measures:
- Prevent vapor build up by providing adequate ventilation during and after use.
- An eye wash facility should be readily available.
- Facilities storing or utilizing this material should be equipped with an eye wash facility and a safety shower.

Exposure limit:

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>EU TLV(TWA)</th>
<th>ACGIH TLV(TWA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-methylhexan-2-one; isoamyl methyl ketone</td>
<td>20 ppm</td>
<td>50 ppm</td>
</tr>
<tr>
<td>titanium dioxide</td>
<td>not est.</td>
<td>10 mg/m3</td>
</tr>
<tr>
<td>xylene</td>
<td>50 ppm</td>
<td>100 ppm</td>
</tr>
<tr>
<td>ethylbenzene</td>
<td>100 ppm</td>
<td>100 ppm</td>
</tr>
</tbody>
</table>

Notes: (RD)=respirable dust. (c)=ceiling limit. (Skin)=skin penetrative.
Mppcf=millions of particles per cubic foot.

Personal protection:
- Respiratory protection: Wear appropriate equipment shown in EU directive 89/656/EC.
- Hand protection: Wear impervious gloves.
- Eye protection: Wear chemical splash goggles and face shield when eye and face contact is possible due to splashing or spraying of material.
- Skin protection: Wear chemical resistant clothing such as gloves, apron, boots or whole bodysuits made from neoprene, as appropriate.

Environmental exposure control: Do NOT let this product enter the environment.

9 PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Physical state:</th>
<th>Liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>color:</td>
<td>gray</td>
</tr>
<tr>
<td>odor:</td>
<td>solvent odor</td>
</tr>
<tr>
<td>pH:</td>
<td>no data.</td>
</tr>
<tr>
<td>boiling point(range):</td>
<td>144[deg.C][291[deg.F])</td>
</tr>
<tr>
<td>flash point:</td>
<td>36[deg.C][96.8[deg.F)]</td>
</tr>
<tr>
<td>ignition temperature:</td>
<td>400[deg.C][752[deg.F)]</td>
</tr>
<tr>
<td>lower explosive limit:</td>
<td>no data.</td>
</tr>
<tr>
<td>higher explosive limit:</td>
<td>no data.</td>
</tr>
<tr>
<td>vapor pressure:</td>
<td>0.01[Pa]</td>
</tr>
<tr>
<td>specific density:</td>
<td>1.56/20[deg.C][68[deg.F)]</td>
</tr>
<tr>
<td>vapor density:</td>
<td>The vapor and the gas are heavier than air.</td>
</tr>
<tr>
<td>solubility in water:</td>
<td>None or poor in water</td>
</tr>
<tr>
<td>percentage volatile:</td>
<td>22.6[%]</td>
</tr>
</tbody>
</table>
10 STABILITY AND REACTIVITY

Stability: Stable under recommended storage and handing conditions (see section 7).
When exposed to high temperature, may produce hazardous decomposition products such as carbon monoxide, carbon dioxide, oxides of nitrogen and smoke.

Hazardous reaction: Hazardous reaction will not occur.
Condition to avoid: Avoid heating temperatures above 40 deg.C.
Materials to avoid: Keep away from oxidizing agents, strongly alkaline and strongly acid materials in order to avoid possible exothermic reactions.
Hazardous decomposition products: The products decomposed on heating producing their oxide or monomers.

11 TOXICOLOGICAL INFORMATION

There are no data available on the product itself.
Toxicological information of ingredients:

acute toxicity:
ethylbenzene
   LC50(inhalation:vapour, rat)=4000[ppm/1H]
   LD50(oral, rat)=3500[mg/kg]
5-methylhexan-2-one; isoamyl methyl ketone
   LC50(inhalation:vapour, rat)=4662[ppm/1H]
   LD50(oral, rat)=2815[mg/kg]
xylene
   LC50(inhalation:vapour, rat)=6700[ppm/1H]
   LD50(oral, rat)=3500[mg/kg]

local effects:
   eye irritant
   ethylbenzene
   5-methylhexan-2-one; isoamyl methyl ketone
   xylene
   titanium dioxide
   skin irritant
   ethylbenzene
   xylene

sensitization:
   No data.
chronically long term effect:
   No data.
specific effects
carcinogenic:
   ethylbenzene
      Carcinogenic(IARC);Class:2B
      Carcinogenic(CLP)
titanium dioxide
      Carcinogenic(IARC);Class:2B
toxic for reproduction
   ethylbenzene
      Toxic for reproduction(CLP)
xylene
12 ECOLOGICAL INFORMATION

For spills or waste, take care to avoid contaminating environment.
Prevent spills and wastewater from entering sewers, water courses or law areas to avoid pollution.
There are no data available on the product itself.
Ecological information of ingredients:
- persistence: ethylbenzene biodegradable: 81-100% (2 weeks)

Data are based on “Biological and Bioaccumulation Data of Existing Chemicals Based on the SCSL Japan” compiled under the supervision of METI (MITI) Japan.

13 DISPOSAL CONSIDERATIONS

The product should not be allowed to inter drain and watercourses.
All notification, clean-up and disposal should be carried out in accordance with European Union, governmental and local regulations.
Preferred method of waste disposal are incineration or biological treatment in federal/state approved facility.
Wastes and empty containers should be disposed of in accordance with regulations made under the control of pollution acts and the environmental protection acts.
Empty containers should be recycled or disposed of through an approved waste management facility.
It is strongly advised not to let the chemical enter into the environment.

14 TRANSPORT INFORMATION

UN regulation:
- UN Shipping name: PAINT (including paint, lacquer, enamel, stain, shellac, varnish, polish, liquid filler and liquid lacquer base) or PAINT RELATED MATERIAL (including paint thinning or reducing compound)
- UN Identification number: 1263
- UN Class: class 3 Flammable liquids.
- UN Packaging group: III
- IMDG Class: class 3.3 High flashpoint group.
- Storage temperature: Store below 40 deg.C. (104 deg.F.).
See section 7, Handling and storage.

15 REGULATORY INFORMATION

The information on the SDS is based on the present state of our knowledge and on current EU laws.
Please refer to any other national measures that may be relevant.

16 OTHER INFORMATION

R20: Harmful by inhalation
R21: Harmful in contact with skin
R22: Harmful if swallowed
R33: Danger of cumulative effects
R36/37: Irritating to eyes and respiratory system
R40: Possible risk of irreversible effects
R60: May impair fertility
R61: May cause harm to the unborn child
S16: Keep away from sources of ignition -- No smoking
S23: Do not breathe gas/fumes/vapor/spray (appropriate wording to be specified by the manufacturer).
S24: Avoid contact with skin
S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical.
S33: Take precautionary measures against static
S36/37/39: Wear suitable protective clothing and gloves and eye/face protection.
S42: During fumigation/spraying wear suitable respiratory equipment.
S53: Avoid exposure - obtain special instruction

This information contained in this data sheet represents the best information currently available to us. However, no warranty is made with respect to its completeness and we assume no liability resulting from its. It is advised to make their own tests to determine the safety and suitability of each such product or combination for their own. Ensure this material in compliance with federal requirements and ensure conformity to local regulations. The product should not be used for purposes other than shown in the safety data sheet without first obtaining written advice.