# SAFETY DATA SHEET

| Section 1: Identification                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product identifier used on th                                                                                                                                                                                                                                                                                                                                           | e label;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                           |
| Product name:                                                                                                                                                                                                                                                                                                                                                           | Tamiya Color Spray for Po                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | olycarbonate PS-9 Green (#86009)                                                                                                                                                                                                                          |
| Product code:                                                                                                                                                                                                                                                                                                                                                           | 0401203009                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                           |
| Other means of identification                                                                                                                                                                                                                                                                                                                                           | 1;                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                           |
| No information                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                           |
| Recommended use of the ch                                                                                                                                                                                                                                                                                                                                               | emical and restrictions on us                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | e;                                                                                                                                                                                                                                                        |
| <b>Recommended use:</b>                                                                                                                                                                                                                                                                                                                                                 | Polyvinyl chloride / polyvi                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | inyl acetate coatings (PS)                                                                                                                                                                                                                                |
| Restrictions on use:                                                                                                                                                                                                                                                                                                                                                    | No information                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                           |
| Name, address, and telephor                                                                                                                                                                                                                                                                                                                                             | e number of the chemical m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | anufacturer, importer, or other responsible                                                                                                                                                                                                               |
| party;                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                           |
| Name:                                                                                                                                                                                                                                                                                                                                                                   | Tamiya, Inc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                           |
| Department in Charge                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                           |
| Address:                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Suruga-ku, Shizuoka JAPAN 422-8610                                                                                                                                                                                                                        |
| Telephone number:                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | -5105 (Headquarters)                                                                                                                                                                                                                                      |
| Fax number:                                                                                                                                                                                                                                                                                                                                                             | +81-(0)54-285-                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                           |
| e-mail address:                                                                                                                                                                                                                                                                                                                                                         | intl_div@tamiy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ya-inc.co.jp                                                                                                                                                                                                                                              |
|                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                           |
| Emergency phone number                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                           |
| Emergency phone number                                                                                                                                                                                                                                                                                                                                                  | +81-(0)54-286-                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | -5105 (Headquarters)                                                                                                                                                                                                                                      |
|                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | -5105 (Headquarters)                                                                                                                                                                                                                                      |
| Section 2: Hazard(s) identifi                                                                                                                                                                                                                                                                                                                                           | cation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                           |
| Section 2: Hazard(s) identifi<br>Classification of the chemica                                                                                                                                                                                                                                                                                                          | cation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                           |
| Section 2: Hazard(s) identifi<br>Classification of the chemica<br>Physical Hazards                                                                                                                                                                                                                                                                                      | cation<br>l in accordance with paragra                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | aph (d) of §1910.1200;                                                                                                                                                                                                                                    |
| Section 2: Hazard(s) identifi<br>Classification of the chemica                                                                                                                                                                                                                                                                                                          | cation<br>l in accordance with paragra                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                           |
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| Section 2: Hazard(s) identifi<br>Classification of the chemica<br>Physical Hazards<br>Flammable aersols                                                                                                                                                                                                                                                                 | cation<br>l in accordance with paragra<br>Ca                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | aph (d) of §1910.1200;                                                                                                                                                                                                                                    |
| Section 2: Hazard(s) identifi<br>Classification of the chemica<br>Physical Hazards<br>Flammable aersols<br>Health Hazards                                                                                                                                                                                                                                               | cation<br>I in accordance with paragra<br>Ca<br>: Ca                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | aph (d) of §1910.1200;<br>itegory 1                                                                                                                                                                                                                       |
| Section 2: Hazard(s) identifi<br>Classification of the chemica<br>Physical Hazards<br>Flammable aersols<br>Health Hazards<br>Acute toxicity (Dermal)                                                                                                                                                                                                                    | cation<br>l in accordance with paragra<br>Ca<br>: Ca<br>m - vapors): Ca                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | aph (d) of §1910.1200;<br>ategory 1                                                                                                                                                                                                                       |
| Section 2: Hazard(s) identifi<br>Classification of the chemica<br>Physical Hazards<br>Flammable aersols<br>Health Hazards<br>Acute toxicity (Dermal)<br>Acute toxicity (inhalation                                                                                                                                                                                      | cation<br>l in accordance with paragra<br>Ca<br>: Ca<br>on - vapors): Ca<br>on - mist): Ca                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>aph (d) of §1910.1200;</b><br>ttegory 1<br>ttegory 5<br>ttegory 4                                                                                                                                                                                      |
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| Section 2: Hazard(s) identifi<br>Classification of the chemica<br>Physical Hazards<br>Flammable aersols<br>Health Hazards<br>Acute toxicity (Dermal)<br>Acute toxicity (inhalation<br>Skin corrosion/irritation                                                                                                                                                         | cation<br>I in accordance with paragra<br>Ca<br>: Ca<br>on - vapors): Ca<br>on - mist): Ca<br>Ca<br>irritation: Ca                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | aph (d) of §1910.1200;<br>ttegory 1<br>ttegory 5<br>ttegory 4<br>ttegory 5<br>ttegory 5<br>ttegory 3                                                                                                                                                      |
| Section 2: Hazard(s) identifi<br>Classification of the chemica<br>Physical Hazards<br>Flammable aersols<br>Health Hazards<br>Acute toxicity (Dermal)<br>Acute toxicity (inhalation<br>Acute toxicity (inhalation<br>Skin corrosion/irritation<br>Serious eye damage/eyee<br>Skin sensitization:                                                                         | cation<br>I in accordance with paragra<br>Ca<br>: Ca<br>in - vapors): Ca<br>on - mist): Ca<br>irritation: Ca<br>Ca                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | aph (d) of §1910.1200;<br>ttegory 1<br>ttegory 5<br>ttegory 4<br>ttegory 5<br>ttegory 3<br>ttegory 2A                                                                                                                                                     |
| Section 2: Hazard(s) identifi<br>Classification of the chemica<br>Physical Hazards<br>Flammable aersols<br>Health Hazards<br>Acute toxicity (Dermal)<br>Acute toxicity (inhalation<br>Acute toxicity (inhalation<br>Skin corrosion/irritation<br>Serious eye damage/eyee<br>Skin sensitization:<br>Carcinogenicity:                                                     | cation<br>I in accordance with paragra<br>Ca<br>Ca<br>in - vapors):<br>Ca<br>on - mist):<br>Ca<br>irritation:<br>Ca<br>Ca<br>Ca<br>Ca<br>Ca<br>Ca<br>Ca<br>Ca<br>Ca<br>Ca                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | aph (d) of §1910.1200;<br>aph (d) of §1910.1200;<br>ategory 1<br>ategory 5<br>ategory 4<br>ategory 5<br>ategory 3<br>ategory 2A<br>ategory 1<br>ategory 1                                                                                                 |
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| Section 2: Hazard(s) identifi<br>Classification of the chemica<br>Physical Hazards<br>Flammable aersols<br>Health Hazards<br>Acute toxicity (Dermal)<br>Acute toxicity (inhalatic<br>Acute toxicity (inhalatic<br>Skin corrosion/irritation<br>Serious eye damage/eye<br>Skin sensitization:<br>Carcinogenicity:<br>Reproductive toxicity:<br>Specific target organ tox | cation         I in accordance with paragra         Ca         ca <t< td=""><td>aph (d) of §1910.1200;<br/>ttegory 1<br/>ttegory 5<br/>ttegory 4<br/>ttegory 5<br/>ttegory 3<br/>ttegory 2A<br/>ttegory 1<br/>ttegory 2<br/>ttegory 2<br/>ttegory 2<br/>ttegory 1<br/>(liver, blood, respiratory system, kidneys, centres and central nervous system)</td></t<> | aph (d) of §1910.1200;<br>ttegory 1<br>ttegory 5<br>ttegory 4<br>ttegory 5<br>ttegory 3<br>ttegory 2A<br>ttegory 1<br>ttegory 2<br>ttegory 2<br>ttegory 2<br>ttegory 1<br>(liver, blood, respiratory system, kidneys, centres and central nervous system) |
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## **Environmental Hazards**

Hazardous to the aquatic environment (acute)

Category 3

# **Other Hazards**

Contact of liquefied gas with skin may cause frostbite.

Signal word, hazard statement(s), symbol(s) and precautionary statement(s) in accordance with paragraph (f) of §1910.1200;

Symbol(s)



Signal word Hazard Statement(s)

**Precautionary Statement(s)** 

[Prevention]

#### Danger

| 8                                                           |
|-------------------------------------------------------------|
| H222: Extremely flammable aerosol                           |
| H229: Pressurized container: may burst if heated            |
| H313: May be harmful in contact with skin                   |
| H316: Causes mild skin irritation                           |
| H317: May cause an allergic skin reaction                   |
| H319: Causes serious eye irritation                         |
| H332: Harmful if inhaled                                    |
| H333: May be harmful if inhaled                             |
| H351: Suspected of causing cancer                           |
| H361: Suspected of damaging fertility or the unborn child   |
| H370: Causes damage to organs (liver, blood, respiratory    |
| system, kidneys, central nerves and central nervous system) |
| H372: Causes damage to organs (kidneys and systemic         |
| toxicity) through prolonged or repeated exposure            |
| H373: May cause damage to organs (blood) through            |
| prolonged or repeated exposure                              |
| H402: Harmful to aquatic life                               |
|                                                             |
| 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.                                                 |
|                                                             |

P211: Do not spray on an open flame or other ignition source.

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.

|                      | Date of issue: 31st March, 2015                                |
|----------------------|----------------------------------------------------------------|
|                      | P243: Take precautionary measures against static discharge.    |
|                      | P251: Pressurized container: Do not pierce or burn, even after |
|                      | use.                                                           |
|                      | P260: Do not breathe dust/fume/gas/mist/ vapors/spray.         |
|                      | P264: Wash hands thoroughly after handling.                    |
|                      | P270: Do not eat, drink or smoke when using this product.      |
|                      | P271: Use only outdoors or in a well-ventilated area.          |
|                      | P272: Contaminated work clothing must not be allowed out of    |
|                      | the workplace.                                                 |
|                      | •                                                              |
|                      | P273: Avoid release to the environment.                        |
|                      | P280: Wear protective gloves/protective clothing/eye           |
|                      | protection/face protection.                                    |
| [Emergency response] | P302+P352: If on skin: Wash with plenty of water.              |
|                      | P303+P361+P353: If on skin (or hair): Take off immediately     |
|                      | all contaminated clothing. Rinse skin with water/shower.       |
|                      | P304+P340: If inhaled: Remove person to fresh air and keep     |
|                      | comfortable for breathing.                                     |
|                      | P305+P351+P338: If in eyes: Rinse cautiously with water for    |
|                      | several minutes. Remove contact lenses, if present and easy to |
|                      | do. Continue rinsing.                                          |
|                      | P308+P311: If exposed or concerned: Call a poison              |
|                      | center/doctor.                                                 |
|                      | P308+P313: If exposed or concerned: Get medical                |
|                      | advice/attention.                                              |
|                      |                                                                |
|                      | P312: Call a poison center/doctor/if you feel unwell.          |
|                      | P314: Get medical advice/attention if you feel unwell.         |
|                      | P333+P313: If skin irritation or rash occurs: Get medical      |
|                      | advice/attention.                                              |
|                      | P337+P313: If eye irritation persists: Get medical             |
|                      | advice/attention.                                              |
|                      | P363: Wash contaminated clothing before reuse.                 |
|                      | P370+P378: In case of fire: Use suitable extinguishing media   |
|                      | to extinguish.                                                 |
| [Storage]            | P403+P235: Store in a well-ventilated place. Keep cool.        |
|                      | P405: Store locked up.                                         |
|                      | P410+P412: Protect from sunlight. Do not expose to             |
|                      | temperatures exceeding 40°C/104 °F.                            |
| [Disposal]           | P501: Dispose of contents/container in accordance with         |
| [~ ishoam]           | local/regional/national/international regulations.             |
|                      | iocal regional/national/international regulations.             |

# Description of any hazards not otherwise classified;

No information

# Ingredient with unknown acute toxicity in the mixture

5 - 10 % of the mixture consists of ingredients of unknown acute toxicity.

| mpositions (contents of the                 | e product) |                                                  |                                  |
|---------------------------------------------|------------|--------------------------------------------------|----------------------------------|
| Chemical name                               | CAS No.    | Concentration/<br>concentration<br>ranges (wt %) | Chemical Formula                 |
| Polyvinyl                                   |            |                                                  |                                  |
| chloride-polyvinyl<br>acetate               | -          | 5 - 10                                           | -                                |
| Butyl acetate                               | 123-86-4   | 5 - 10                                           | $C_{6}H_{12}O_{2}$               |
| iso-Butyl acetate                           | 110-19-0   | 5 - 10                                           | $C_{6}H_{12}O_{2}$               |
| Methyl isobutyl ketone                      | 108-10-1   | 5 - 15                                           | $C_6H_{12}O$                     |
| Ethylene glycol mono- <i>n</i> -butyl ether | 111-76-2   | 1 – 5                                            | $C_6H_{14}O_2$                   |
| iso-Butyl alcohol                           | 78-83-1    | 1-5                                              | $C_4H_{10}O$                     |
| Acetone                                     | 67-64-1    | 5 - 15                                           | C <sub>3</sub> H <sub>6</sub> O  |
| Cyclohexanone                               | 108-94-1   | <1                                               | C <sub>6</sub> H <sub>10</sub> O |
| Diacetone alcohol                           | 123-42-2   | 1-5                                              | $C_{6}H_{12}O_{2}$               |
| Vinyl acetate                               | 108-05-4   | 0.4                                              | $C_4H_6O$                        |
| Titanium Oxide (IV)                         | 13463-67-7 | < 1                                              | TiO <sub>2</sub>                 |
| Carbon black                                | 1333-86-4  | < 1                                              | С                                |
| Other ingredients                           | -          | 1 - 5                                            | -                                |
| Dimethyl ether<br>(as propellant)           | 115-10-6   | 40 - 50                                          | $C_2H_6O$                        |

# Section 3: Composition/information on ingredients

# Section 4: First-aid measures

# Necessary first-aid measures by relevant routes of exposure;

| vecessary mrst-aid measures by rele | evant routes of exposure;                                                                                              |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| IF INHALED                          | If inhaled a large volume of vapor or gases, immediately remove victim to fresh air and keep patient at rest and warm. |
|                                     | If not breathing or breathing is weakened, give artificial respiration.                                                |
|                                     | If you feel unwell after inhaling vapor or gases, keep at rest                                                         |
|                                     | under fresh air and get medical advice/attention.                                                                      |
| IF ON SKIN                          | Wipe off with a dry cloth then wash the contaminated area                                                              |
|                                     | with soap and water.                                                                                                   |
|                                     | Take off immediately all contaminated clothing.                                                                        |
|                                     | Wash contaminated area with plenty of soap and water.                                                                  |
|                                     | If exposed to the solvent to the whole body, wash thoroughly                                                           |
|                                     | by taking a bath or shower.                                                                                            |
|                                     | When suffering from frostbite due to contact with the                                                                  |
|                                     | liquefied gas, rinse skin with plenty of regular/warm water                                                            |
|                                     | without taking off clothes.                                                                                            |
|                                     | If appearance changes or pain occur, get medical                                                                       |
|                                     | advice/attention.                                                                                                      |
| IF IN EYES                          | Rinse cautiously with water for several minutes.                                                                       |
|                                     | Remove contact lenses, if present and easy to do. Continue                                                             |
|                                     | rinsing.                                                                                                               |
|                                     |                                                                                                                        |

Tamiya Color Spray PS-9 Tamiya, Inc. Page5 of 15 Date of issue: 31st March, 2015 If pain continues, immediately get medical advice/attention.

IF SWALLOWEDAs this product is volatile, vomiting may increase risk.Immediately get medical advice/attention.Wash mouth out thoroughly with water.If unconscious, do not give anything by mouth.

## Most important symptoms/effects, acute and delayed;

May cause an allergic skin reaction.

Causes serious eye irritation.

Harmful if inhaled.

Suspected of causing cancer.

Suspected of damaging fertility or the unborn child.

Causes damage to organs.

Causes damage to organs through prolonged or repeated exposure.

May cause damage to organs through prolonged or repeated exposure.

#### Indication of immediate medical attention and special treatment needed, if necessary;

No information

## Section 5: Fire-fighting measures

# Suitable (and unsuitable) extinguishing media;

# Suitable extinguishing media:

Keep away from aerosol products that might explode when exposed to high temperatures. Do not use water.

In case of a small-scale fire: dry chemical powder, carbon dioxide or alcohol resistance foam. In case of a large-scale fire: carbon dioxide, fire foam, dry chemical powder or dry sand.

## Unsuitable extinguishing media

Direct water

#### Specific hazards arising from the chemical;

Aerosol containers may explode in fire. Content is highly flammable combustible liquid.

#### Special protective equipment and precautions for fire-fighters;

Immediately extinguish a fire with fire extinguisher.

Use the specified fire extinguisher.

Immediately remove nearby flammable materials.

Take action from windward. Avoid breathing toxic gases (e.g. CO, NO<sub>X</sub>).

Ensure to wear suitable protective equipment (e.g. heat resistant protective clothing, protective glasses and self-contained compressed air breathing apparatus) in firefighting.

# Section 6: Accidental release measures

#### Personal precautions, protective equipment, and emergency procedures;

Appropriate protective equipment must be worn when handling spill of this material.

May cause organic solvent poisoning.

Hazardous to human health. This product has risk of acute or chronic effects.

Before taking any measures in the event of gas leakage (blowout), approach the spot from the windward side to empty out the gas container, with the leaking area facing upward.

Quickly remove ignition sources, high temperature materials or combustible materials from the surrounding. Evacuate people downwind from the fire. Keep out except responsible personnel.

Set up dry chemical powder or fire foam in preparation for ignition.

Pick up the gas container using tools made from materials that avoid impact/static-induced sparks (anti-spark).

Ventilate confined spaces before entering.

Wear suitable protective equipment (e.g. gloves, protective mask, apron and goggle).

Avoid release into the environment because spilled product may cause local effects.

In case of a small amount of spill, collect spilled product by absorbing in dry sand or sawdust and followed by placing it in a waste container.

If case of large amounts, prevent leakage and enclose by embankment.

Collect leakage into a closed container and then move to safe place.

Do not allow leakage to enter drains or sewers.

Dispose of contaminants or wastes in accordance with applicable laws and regulations.

#### Methods and materials for containment and cleaning up;

Immediately remove ignition sources nearby, and set up dry chemical powder or fire foam in preparation for ignition.

Do not walk over leaked materials more than necessary.

Use non-sparking tools.

#### Section 7: Handling and storage

# Precautions for safe handling

# **Protective measures:**

Install appropriate equipment and wear suitable protective apparatus described in "Section 8: Exposure controls/personal protection".

For protection against static electricity, grounding all equipment and use explosion proof (increased safety type) electric apparatus. Take necessary measures against static electricity. Wear electro conductive work clothes and shoes.

Use anti-spark tools.

Handle the product in a well-ventilated area and accordingly store in a closed container.

If used in a closed place, install sufficient local ventilation equipment and wear suitable protective equipments during work.

Do not handle until all safety precautions have been read and understood.

Wear protective equipment to prevent from exposure.

Do not use fire, spark or high temperature materials around the product.

Do not spray on an open flame.

Containers may burst when exposed to high temperatures.

When transporting, avoid making impacts on container or handling violently. Load so that falling,

dropping off or damage will not occur.

Wear suitable protective equipment to avoid contact with skin, mucosa, clothing, or eyes. Do not contact, inhale or swallow this product.

Use only outdoors or in a well-ventilated area.

# Advice on general occupational hygiene:

Wash hands thoroughly after handling.

# Conditions for safe storage, including any incompatibilities

# **Technical measures:**

In the storage area, install adequate light and ventilation systems to handle hazardous materials. Take precautionary measures against static discharge.

# **Incompatible materials:**

Strong oxidizers and strong alkali

# **Conditions for safe storage:**

Keep out of reach of children.Keep away from direct sunlight and store in a well ventilated place.Because gas may leak or blow out from a rusted container, avoid storing this product in high-humidity environments near water sources.

Keep away from sources of ignition or heat.

Do not put this product at place over 40°C.

Electrical equipment used in the storage area must be explosion- proof and grounded.

# Packing material:

Use the packaging container in accordance with regulations.

| Section 8: Exposure con | ntrols/personal protection |
|-------------------------|----------------------------|
|-------------------------|----------------------------|

| Occupational Exposure Limits; |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OSHA PEL                      | <ul> <li>150 ppm, 710 mg/m<sup>3</sup> (<i>n</i>-Butyl acetate)</li> <li>150 ppm, 700 mg/m<sup>3</sup> (Isobutyl acetate)</li> <li>100 ppm, 307 mg/m<sup>3</sup> (Methyl isobutyl ketone<br/>(Hexone))</li> <li>50 ppm, 240 mg/m<sup>3</sup> (2-Butoxyethanol (EGBE))</li> <li>100 ppm, 300 mg/m<sup>3</sup> (Isobutanol (Isobutyl alcohol))</li> <li>1,000ppm, 2,400 mg/m<sup>3</sup> (Acetone)</li> <li>50 ppm, 200 mg/m<sup>3</sup> (Cyclohexanone)</li> <li>50 ppm, 240 mg/m<sup>3</sup> (Diacetone alcohol</li> <li>(5-Hydroxy-4-methyl-2-pentanone))</li> <li>15 mg/m<sup>3</sup> (Total dust) (Titanium dioxide)</li> <li>3.5 mg/m<sup>3</sup> (Carbon black )</li> </ul> |
| ACGIH TLV-TWA (2014)          | <ul> <li>150 ppm, 713 mg/m<sup>3</sup> (<i>n</i>-Butyl acetate)</li> <li>150 ppm, 713 mg/m<sup>3</sup> (Isobutyl acetate)</li> <li>20 ppm, 82 mg/m<sup>3</sup> (Methyl isobutyl ketone (Hexone))</li> <li>20 ppm, 97 mg/m<sup>3</sup> (2-Butoxyethanol (EGBE))</li> <li>50 ppm, 152 mg/m<sup>3</sup> (Isobutanol (Isobutyl alcohol))</li> <li>500 ppm, 1,188 mg/m<sup>3</sup> (Acetone)</li> <li>20 ppm (Cyclohexanone)</li> <li>50 ppm, 238 mg/m<sup>3</sup> (Diacetone alcohol</li> <li>(5-Hydroxy-4-methyl-2-pentanone))</li> <li>10 ppm, 35 mg/m<sup>3</sup> (Vinyl acetate)</li> <li>10 mg/m<sup>3</sup> (Titanium dioxide)</li> </ul>                                      |
| ACGIH TLV-STEL (2014)         | <ul> <li>3.5 mg/m<sup>3</sup> (Carbon black )</li> <li>200 ppm, 950 mg/m<sup>3</sup> (<i>n</i>-Butyl acetate)</li> <li>75 ppm, 307 mg/m<sup>3</sup> (Methyl isobutyl ketone (Hexone))</li> <li>750 ppm, 1,782 mg/m<sup>3</sup> (Acetone)</li> <li>50 ppm (Cyclohexanone)</li> <li>15 ppm, 53 mg/m<sup>3</sup> (Vinyl acetate)</li> </ul>                                                                                                                                                                                                                                                                                                                                         |

# Appropriate engineering controls;

Use explosion proof equipment.

Take precautionary measures against static discharge.

Install eye washer and safety shower around the handling place.

With the help of a ventilator, prevent the gas steam from staying afloat.

In handling this product, make sure that there are no high-temperature devices or potential ignition sources nearby.

If used indoor, install equipment to prevent workers from direct exposure, or provide local exhaust ventilation system to prevent workers exposed to vapors.

# Individual protection measures, such as personal protective equipment;

| Respiratory protection   | Wear gas mask for organic gases, dust mask and/or              |
|--------------------------|----------------------------------------------------------------|
|                          | air-supplied respirator (in confined spaces) if necessary.     |
| Hand protection          | Wear solvent resistance protective gloves if necessary.        |
| Eye protection           | Wear protective glasses (goggle or with a side plate) or face  |
|                          | protector if necessary.                                        |
| Skin and body protection | Wear protective clothing, boots or solvent resistance apron if |
|                          | necessary.                                                     |
|                          |                                                                |

# Hygiene measure

Do not eat, drink or smoke during work. Wash hands thoroughly after handling.

# Section 9: Physical and chemical properties

|                               | Product Liquid        | Propellant (DME)                  |
|-------------------------------|-----------------------|-----------------------------------|
| Appearance                    | Green liquid          | Under atmospheric pressure: Clear |
| (physical state, color, etc.) |                       | and colourless liquefied gas      |
|                               |                       | In pressure container: Clear and  |
|                               |                       | colourless liquid                 |
| Odor                          | Solvent or sharp odor | Slight sweet odor                 |
| Odor threshold                | No information        | No information                    |
| рН                            | Not applicable        | Not applicable                    |
| Melting point/freezing        | -                     | -141.5°C                          |
| point                         |                       |                                   |
| Initial boiling point and     | 56.2 - 171.2°C        | -24.82°C                          |
| boiling range                 |                       |                                   |
| Flash point                   | -17°C                 | -41.1°C                           |
| Evaporation rate              | No information        | No information                    |
| Flammability (solid, gas)     | No information        | No information                    |
| Upper/lower flammability      | No information        | No information                    |
| or explosive limits           |                       |                                   |
| Vapor pressure                | 24.6 KPa (20°C)       | 0.41 MPa (20°C)                   |
| Vapor density                 | No information        | 1.59 (Air = 1)                    |
| Relative density              | No information        | No information                    |
| Solubility (ies)              | -                     | Water: 7.0 g/100 cc               |
|                               |                       | (18°C 760 mmHg)                   |
| Partition coefficient:        | No information        | No information                    |
| <i>n</i> -octanol/water       |                       |                                   |
| Auto-ignition temperature     | No information        | No information                    |
| Decomposition temperature     | No information        | No information                    |
| Viscosity                     | No information        | No information                    |
| Ignition point                | $\geq$ 244°C          | 350°C                             |
| Range of explosion            |                       | 3.4 - 24 vol%                     |
| Specific gravity              | ca. 0.9               | 0.661 (20°C)                      |
|                               |                       |                                   |

## **Other information**

No information

# Section 10: Stability and reactivity

# Reactivity

This product may explode at 40°C or above. Static electrical charge may induce explosion.

# **Chemical stability**

This product is a flammable liquefied gas, which tends to form an explosive gas mixture with air.

# Possibility of hazardous reactions

This product contains high-pressure gas. This product may explode due to heating and shock. The use of this product in cars may cause smothering or lack of oxygen. Thoroughly ventilate car after use. Before ventilating, make sure of the absence of ignition sources nearby. Keep in mind that the gas tends to stay afloat at lower positions.

# **Conditions to avoid**

Storage under high temperature and humidity conditions and use near fire (ignition source such as flame or sparks).

## **Incompatible materials**

Strong oxidizers and strong alkali

#### Hazardous decomposition products

May produce toxic gases (e.g. CO, NO<sub>X</sub>) by inflammation.

#### Section 11: Toxicological information

# Symptoms related to the physical, chemical and toxicological characteristics;

Information on product:

| This product is classified Category 5 by GHS classification.     |
|------------------------------------------------------------------|
| This product is classified Category 4 by GHS classification.     |
| This product is classified Category 5 by GHS classification.     |
| This product is classified Category 3 by GHS classification.     |
| This product is classified Category 2A by GHS classification.    |
| This product is classified Category 1 by GHS classification.     |
| This product is classified Category 2 by GHS classification.     |
| This product is classified Category 2 by GHS classification.     |
| This product is classified Category 1 (liver, blood, respiratory |
| system, kidneys, central nerves and central nervous system)      |
| by GHS classification.                                           |
| This product is classified Category 1 (kidneys, systemic         |
| toxicity and lungs) and Category 2 (blood) by GHS                |
| classification.                                                  |
|                                                                  |

Other toxicological information

Information on ingredients:

Butyl acetate Acute toxicity (oral):

Other toxicological information

iso-Butyl acetate

Acute toxicity (oral): Other toxicological information

Methyl isobutyl ketone

Acute toxicity (oral): Carcinogenicity: Other toxicological information

Ethylene glycol mono-n-butyl ether

Acute toxicity (oral): Carcinogenicity:

Other toxicological information

*iso*-Butyl alcohol

Acute toxicity (oral): Other toxicological information

#### Acetone

Acute toxicity (oral): Other toxicological information

#### Cyclohexanone

Acute toxicity (oral): Carcinogenicity: Other toxicological information

Diacetone alcohol

Acute toxicity (oral): Other toxicological information

Vinyl acetate

Acute toxicity (oral): Carcinogenicity: Rat  $LD_{50} = 14,870 \text{ mg/kg}$ No information

frostbite.

Rat  $LD_{50} = 15,400 \text{ mg/kg}$ No information

Rat  $LD_{50} = 2,080 \text{ mg/kg}$ Methyl isobutyl ketone is classified Group 2B by IARC. No information

Rat  $LD_{50} = 500 \text{ mg/kg}$ Ethylene glycol mono-*n*-butyl ether is classified Group 3 by IARC. No information

Rat  $LD_{50} = 2,460 \text{ mg/kg}$ No information

Rat  $LD_{50} = 6,800 \text{ mg/kg}$ No information

Rat  $LD_{50} = 1,544 - 1,620 \text{ mg/kg}$ Cyclohexanone is classified Group 3 by IARC. No information

Rat  $LD_{50} = 4,000 \text{ mg/kg}$ No information

Rat  $LD_{50} = 2,900 \text{ mg/kg}$ Vinyl acetate is classified Group 2B by IARC. Other toxicological information

No information

| Titanium Oxide (IV)             |                                                     |
|---------------------------------|-----------------------------------------------------|
| Carcinogenicity:                | Titanium Oxide (IV) is classified Group 2B by IARC. |
| Other toxicological information | No information                                      |
| Carbon black                    |                                                     |
| Carcinogenicity:                | Carbon black is classified Group 2B by IARC.        |
| Other toxicological information | No information                                      |

# Delayed and immediate effects and also chronic effects from short- and long-term exposure;

May cause an allergic skin reaction. Causes serious eye irritation. Harmful if inhaled. Suspected of causing cancer. Suspected of damaging fertility or the unborn child. Causes damage to organs (liver, blood, respiratory system, kidneys, central nerves and central nervous system). Causes damage to organs (kidneys, systemic toxicity and lungs) through prolonged or repeated exposure.

May cause damage to organs (blood) through prolonged or repeated exposure.

# Numerical measures of toxicity (such as acute toxicity estimates);

Acute toxicity was estimated based on ingredients of the product by additivity formula.

| Section 12: Ecological information   |                                                        |  |
|--------------------------------------|--------------------------------------------------------|--|
| Ecotoxicity:                         |                                                        |  |
| Information on product:              | No information                                         |  |
| Information on ingredients:          |                                                        |  |
| Polyvinyl chloride-polyvinyl acetate |                                                        |  |
| Aquatic acute toxicity:              | No information                                         |  |
| Aquatic chronic toxicity:            | No information                                         |  |
| Butyl acetate                        |                                                        |  |
| Aquatic acute toxicity:              | A toxicity rank for aquatic life is $100 \sim 10$ ppm. |  |
| Aquatic chronic toxicity:            | No information                                         |  |
| iso-Butyl acetate                    |                                                        |  |
| Aquatic acute toxicity:              | A toxicity rank for aquatic life is 1000ppm.           |  |
| Aquatic chronic toxicity:            | No information                                         |  |
| Methyl isobutyl ketone               |                                                        |  |
| Aquatic acute toxicity:              | Fish (Carassius auratus auratus) 24h-TLm = 460 mg/L    |  |

| Aquatic chronic toxicity:                                | Date of issue: 31st March, 201<br>No information                                                                               |
|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| -                                                        |                                                                                                                                |
| Ethylene glycol mono- <i>n</i> -butyl ether              | Fish ( <i>Carassius auratus auratus</i> ) $24h-LC_{50} = 1,700 \text{ mg/L}$                                                   |
| Aquatic acute toxicity:<br>Aquatic chronic toxicity:     | No information                                                                                                                 |
| iso-Butyl alcohol                                        |                                                                                                                                |
| Aquatic acute toxicity:<br>Aquatic chronic toxicity:     | Fish ( <i>Carassius auratus auratus</i> ) 24h-TLm = 2,600 mg/L<br>No information                                               |
| Acetone                                                  |                                                                                                                                |
| Aquatic acute toxicity:<br>Aquatic chronic toxicity:     | Fish ( <i>Lepomis macrochirus</i> ) 96h-TLm = 8,300 mg/L<br>No information                                                     |
| Cyclohexanone                                            |                                                                                                                                |
| Aquatic acute toxicity:                                  | Fish ( <i>Pimephales promelas</i> ) 96h-LC <sub>50</sub> = 527 mg/L<br>Fish (Bluegill sunfish) 48h-LC <sub>50</sub> = 460 mg/L |
| Aquatic chronic toxicity:                                | No information                                                                                                                 |
| Diacetone alcohol                                        |                                                                                                                                |
| Aquatic acute toxicity:<br>Aquatic chronic toxicity:     | Fish ( <i>Carassius auratus auratus</i> ) $LC_{50} = 12,250/8,930 \text{ mg/L}$                                                |
| Vinyl acetate                                            |                                                                                                                                |
|                                                          | Fish (Oryzias latipes) $LC_{50} = 2.39 \text{ mg/L}$                                                                           |
| Aquatic acute toxicity:                                  | Fish ( <i>Lepomis macrochirus</i> ) 96h-LC <sub>50</sub> = $18$ mg/L                                                           |
| Aquatic chronic toxicity:                                | Crustaceans ( <i>Daphnia magna</i> ) $EC_{50} = 52/330 \text{ mg/L}$<br>No information                                         |
| Titanium Oxide (IV)                                      |                                                                                                                                |
| Aquatic acute toxicity:                                  | No information                                                                                                                 |
| Aquatic chronic toxicity:                                | No information                                                                                                                 |
| Carbon Black                                             |                                                                                                                                |
| Aquatic acute toxicity:                                  | No information                                                                                                                 |
| Aquatic chronic toxicity:                                | No information                                                                                                                 |
| Dimethyl ether (as propellant)                           |                                                                                                                                |
| Aquatic acute toxicity:                                  | No information                                                                                                                 |
| Aquatic chronic toxicity:                                | No information                                                                                                                 |
| ersistence and degradability:<br>Information on product: | No information                                                                                                                 |
| Information on ingredients:                              |                                                                                                                                |
|                                                          |                                                                                                                                |

Polyvinyl chloride-polyvinyl acetate No information

Butyl acetate Readily degradable.

# *iso*-Butyl acetate Readily degradable.

Methyl isobutyl ketone

Readily degradable.

# Ethylene glycol mono-n-butyl ether

Readily degradable.

iso-Butyl alcohol

Readily degradable.

Acetone Degradable by activated sludge.

Cyclohexanone

No information

Diacetone alcohol

Readily degradable.

# Vinyl acetate

Readily degradable (degradation by BOD = 90%) and bioaccumulative potential is low.

Titanium Oxide (IV) No information

Carbon black No information

Dimethyl ether (as propellant) No information

**Bioaccumulative potential:** 

Information on product:

No information

# Mobility in soil:

Information on product:

No information

# Other adverse effects:

No information available at this time. However, be careful because the leakage or disposal of the product may cause affects to the environment.

#### Section 13: Disposal considerations

#### Waste treatment methods

Dispose of material waste in accordance with governmental regulations.

Prevent release of material into natural.

Incinerate in a where permitted by appropriate federal, state and local regulations.

Comply with all federal, state and local regulations.

Do not dump this product into sewers, on the ground or into any body of water.

| Section 14: Transport information |            |
|-----------------------------------|------------|
| UN number                         | 1950       |
| UN proper shipping name           | AEROSOLS   |
| Transport hazard class(es)        | 2          |
| Packing group                     | -          |
| Environmental hazards             | Applicable |
|                                   |            |

#### Transport in bulk according to Annex II of MARPOL 73/78 and IBC code

Not applicable

# Special precautions for user

On transportation, keep containers under 40°C.

Perform loading making sure that overrun, fall down, or any damage does not occur.

| Section 15: Regulatory information |                                                               |  |
|------------------------------------|---------------------------------------------------------------|--|
| OSHA:                              | Hazardous chemical                                            |  |
| TSCA inventory:                    | These substances are on the inventory or exempt from listing. |  |
| TSCA SNUR                          | Not listed                                                    |  |

#### Section 16: Other information, including date of preparation or last revision

# Update history:

Date of issue: 31st March, 2015

# **References:**

Information of Tamiya, Inc. ACGIH, American Conference of Governmental Industrial Hygienists (2014) TLVs and BEIs.

#### [Disclaimer]

This SDS has been prepared based on the best available information however, it may not be sufficient in some cases. It is user's responsibility to modify or update any contents in this SDS regarding information on hazardous properties and/or instruction for safe handling of the product when they become available. Precautionary measures in this SDS are only applicable for normal handling conditions and it is necessary to take appropriate additional measures to ensure safe handling which depend on your specific use conditions or situations.