1. Identification

Product
Description: PANA SPRAY PLUS
Order code: Z182600

Company Information
Company Name: NAKANISHI INC.
Address: 700 Shimohinata Kamuna-shi Tochigi 322-8666, Japan (HQ)
Dept.: Quality Assurance Dept.
TEL: +81(0)289-64-3380 (HQ) +81(0)289-64-7277 (QA)
FAX: +81(0)289-62-5636 (HQ) +81(0)289-64-3890 (QA)
Emergency contact No.: —
Recommended use and usage restrictions: Lubricant

2. Hazard identification

Significant hazards and effects
Specific hazards
GHS classification: N/A

Physical and Chemical hazards
Explosives: N/A
Flammable/Ignitable gas: N/A
Flammable/Ignitable aerosol: Classification 1
Burnable/oxidized gas: N/A
High-pressure gas: N/A
Ignitable liquid: Classification 2
Flammable solid: N/A
Autoreactive chemical: N/A
Pyrophoric liquid: N/A
Pyrophoric solid: N/A
Self-heating chemical: unclassifiable
Water-reactive flammable chemical: unclassifiable
Oxidizing liquid: unclassifiable
Oxidizing solid: N/A
Organic peroxide: unclassifiable
Metal-corrosive chemical: unclassifiable

Hazardsto health
Acute toxicity (oral): unclassifiable
Acute toxicity (percutaneous): unclassifiable
Acute toxicity (inhalation: gas): Out of category
Acute toxicity (inhalation: vapor): unclassifiable
Acute toxicity (inhalation: dust, mist): unclassifiable
Skin corrosivity/Irritation: unclassifiable
Serious damage to eyes/Eye irritation: Classification 2A
Respiratory sensitization: unclassifiable
Skin sensitization: unclassifiable
Germline mutagenicity: Classification 1B
Carcinogenicity: unclassifiable
Reproductivity
Effects on breast-feeding
Classification 1A
Target organ/Systemic toxicity (single exposure)
Classification 3 (Airway irritation, Anesthetic action)
Target organ/Systemic toxicity (repeated exposure)
Classification 1 (Liver)
Classification 2 (Nerve)
Hazards to suction aspiration
unclassifiable
Hazards to environment
Hazards to water environment (acute)
unclassifiable
Hazards to water environment (chronic)
unclassifiable

Labeling elements
Pictogram

Signal word
Danger

Hazard statements
(Airway irritation) Possibility of irritation to airway/(Anesthetic Possibility of sleepiness or diziness Possibility of inherited disorders Highly-ignitable liquid and vapor Highly flammable/ignitable aerosol Serious eye irritation Possibility of adverse effect on reproductivity/fetus Organ <liver> damage from long-term/repeated exposure Possibility of organ <nerve> damage from long-term/repeated exposure

Precautionary statement
Prevention
Wear protective globes and glasses/mask.
Use an explosive-proof electrical/ventilation/lighting equipment.
Earth the container and receiver.
No eating and smoking at the time of use.
Read safety precautions before use.
Handle it in the open air/well-ventilated area.
Pressurized container: Do not punctuate/burn the container.
Use a non-sparkling tool.
Obtain the operation manual before use.
Wash hands thoroughly after use.
Take preventive measures against electrostatic discharge.
Avoid heat, spark, flame and ignition source - No smoking.
Use protective equipment if necessary.
Do not inhale the gas/mist/vapor/spray.
Airtight the container.
Do not spray the lubricant toward a fire, high-temperature incandescent body.

Response
In the event of fire, use carbon dioxide/powder/foam fire-extinguisher or drying sand.
Eye contact: Thoroughly wash eyes for several mins. If you wear lenses, remove them, and continue to wash the eyes.
If the pain persists, seek the help of a doctor.
When feeling sick, contact a doctor.
When feeling sick, seek the help of a doctor.
Inhalation: Move the affected person to a place with fresh air and keep him/her at rest in a comfortable position for breathing. Wash hands after use.

Skin (hair) contact: Immediately take off/remove the contaminated clothing. Wash the affected skin with soap and water.

In the event of exposure/concern about exposure: Seek medical attention.

Storage
Airtight the container and store it in a well-ventilated place.
Keep it under lock and key.
Avoid direct sunlight. It should not be subjected to temperatures exceeding 40°C.
Store it in a well-ventilated/cool place.

Disposal
Dispose of the component/container by requesting an industrial waste disposal professional according to the disposal regulations of local government.

Non-GHS-based hazards
Category: Ignitable liquid, High-pressure gas
Hazard: Ignitable at ordinary temperature, since ignitable liquid is the vapor and air generate explosive gas.
Flammable gas is contained. Explosive when the gas is accumulated.
Irritation-producing, if come in contact with skin/eyes.
Headache/Dizziness/Vomit/Amnesia-producing, if swallowed or inhaled high levels of vapor.

Environment
Hazards to aquatic organism, if it's high levels.

### 3. Composition/information on ingredients

<table>
<thead>
<tr>
<th>Substance / Mixture</th>
<th>Substance</th>
<th>General product description</th>
<th>Lubrication oil</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Ingredients and composition</th>
<th>Chemical name</th>
<th>CAS No.</th>
<th>Concentration (mass %)</th>
<th>Chemical/Structural formula</th>
<th>Notice No. from government gazette (CSCL)</th>
<th>PRTR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ester lubricant</td>
<td>N/A</td>
<td>5.0~10.0</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>----</td>
</tr>
<tr>
<td>Ethanol</td>
<td>64-17-5</td>
<td>25.0~35.0</td>
<td>C2H5OH</td>
<td></td>
<td>(2)-202</td>
<td>----</td>
</tr>
<tr>
<td>LPG</td>
<td>74-98-6</td>
<td>15.0~25.0</td>
<td>CH3CH2CH3</td>
<td></td>
<td>(2)-3</td>
<td>----</td>
</tr>
<tr>
<td>Propane</td>
<td>106-97-8</td>
<td>25.0~35.0</td>
<td>C4H10</td>
<td></td>
<td>(2)-4</td>
<td>----</td>
</tr>
<tr>
<td>n-butane</td>
<td>75-28-5</td>
<td>5.0~15.0</td>
<td>C4H10</td>
<td></td>
<td>(2)-4</td>
<td>----</td>
</tr>
<tr>
<td>i-butane</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 4. First-aid measures

**Inhalation**
- Immediately move the affected person to a place with fresh air and keep him/her warm with a blanket and quiet. Give rescue breathing if breathing has been irregular/stopped. Keep him/her from swallowing.
- In case of sickness-producing when inhaled vapor/gas, move the affected person to a place with fresh air and keep him/her quiet. Seek medical attention.

**Skin contact**
- Thoroughly wash the site with soap and water after wiping it off with a dry cloth. Take off the contaminated cloth and wash the exposed area of skin thoroughly with soap and water.
- Wash it off by taking a shower/bath in case of whole-body exposure.
- In case of cryogenic burn by gas exposure, rinse with plenty of warm/cold water without taking off the cloth.
- Seek medical attention if there is pain/change in appearance.
### 5. Fire-fighting measures

**Suitable extinguishing media**
- Carbon dioxide, foam/powder fire-fighting agent, dry sand.
- Explosion-producing with an aerosol container at a fire site.

**Specific extinguishing methods**
- Smother a fire with fire extinguisher.
- Use the specified fire extinguisher.
- Immediately remove any inflammable items from the surrounding area.
- Extinguish the fire from the windward side not to inhale toxic gas.
- Extinguish the fire at a distance for the possibility of producing an explosion with aerosol container at a fire site. Pour water and cool the product container that is subjected to high temperature.
- In case of a larger fire, it is effective to use a foam fire extinguisher and block out the air.

(Fire in the surrounding area)
- Immediately move the container to a safe place.
- If the container is not movable, sprinkle water on it and the surrounding area.

**Special protective equipment for firefighters**
- Wear a proper protective cloth (heat-resistant cloth, protective glasses etc.) and use a ventilator.

### 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**
- Wear a proper protective cloth.
- Take action from the windward side. Turn the leakage site of container up and let the gas out completely.
- Immediately remove any inflammable items from the surrounding area.
- Evacuate people on the downwind and close the area to all unauthorized people.
- Prepare a fire extinguisher in case of fire.
- Collect the requid by using an equipment which is not made of spark-producing materials on impact/with statics.
- In case of massive generation of vapor, reduce the generation by
- Collect the leakage in an airtight container and absorb the residue in a inner absorbent. Move them in a safe place.

**In case of small amount**
- Supply earth sand/waste cloth to absorb the lubricant. Collect it in an empty container.

**In case of large amount**
- Use soil and sand to stop the flow of leaking lubricant and lead the lubricant to a safe area. Cover the liquid surface with foam and collect as much of the liquid as possible in an empty container.

- Do not discharge leakage into sewers, drains, etc.
- Dispose of waste in accordance with applicable regulations.

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**Eye contact**
- Wash eyes with clean water for several mins. If you wear contact lenses, remove them, and continue to wash the eyes. If the pain persists, seek the help remove them, and continue to wash the eyes. If the pain persists, seek the help of a doctor.

**Ingestion**
- Get the person vomit by giving him/her a plenty of water.
- Do not give him/her anything when he/she is unconscious. Seek medical attention.

**Protection of first-aiders**
- No information

**Notes to physician**
- No information
7. Handling and storage

Handling

General Precautions

- Due to countermeasures against static electricity, earth equipments on the ground. Electric(al) apparatus must be explosionproof structured. Wear a proper protective cloth.
- Use a spark-unproducing tool.
- Handle it in a well-ventilated place.

Advice on safe handling

- No flame, spark and high-temperature substance around the area.
- Do not roll over/drop/impact on the container. Also, do not drag it.
- Obtain the instructions for use before using.
- Read the instructions carefully until you fully understand it.
- No eating and smoking when using this product.
- Do not spray the lubricant toward a fire, high-temperature incandescent body.
- Pressurized container : Do not punctuate/burn the container.
- Use the product with user's back to the wind to prevent him/her from being exposed.
- No flame, spark and high-temperature substance around the area.
- The container may explode under high temperature condition.
- Wash hands thoroughly after use.
- Keep it away from oxidant.
- As a general rule, handled at room temperature. Keep liquid/foreign particle ingress.

Storage

Conditions

- Keep out of reach of children.
- Avoid direct sunlight and store it in a well-ventilated place.
- Store it away from moisture because of fear of liquid leakage or explosion from/of rusty container.
- Keep it away from perchloric acid/hydrogen peroxide water/sodium peroxide/chromic acid/nitric acid/oxidant etc.
- Avoid flame and heat.
- Should not be subjected to temperatures exceeding 40℃
- Electric(al) apparatus used in the storage area must be explosionproof structured. Earth the apparatus on the ground when used.
- Follow other relevant regulations such as Fire defense law, Industrial Safety and Health Act.

Packaging materials

- Container should be in accordance wiwth High Pressure Gas Safety

8. Exposure controls/personal protection

Equipment measures

- Equipment must be explosionproof structured.
- Provide an exhaust system for air circulation.
- Keep heat and ignition source away from the handling area.
- In case of indoor work, provide a specific equipment such as local exhaust system to prevent an operator from being directly exposed.

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Component</th>
<th>Controlled concentration (SHA)</th>
<th>Allowable concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Japan society for occupational health</td>
</tr>
<tr>
<td>Ethanol</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>LPG</td>
<td>n-butane 500ppm</td>
<td>n-butane 800ppm</td>
</tr>
</tbody>
</table>
### 9. Physical and chemical properties

<table>
<thead>
<tr>
<th></th>
<th>Liquid</th>
<th>Spray</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status</td>
<td>Fluid</td>
<td>Gas (under atmospheric pressure)</td>
</tr>
<tr>
<td>Appearance</td>
<td>Clear and colorless</td>
<td>Clear and colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>Alcohol</td>
<td>Odiferous</td>
</tr>
<tr>
<td>pH</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Melting point</td>
<td>-114.5°C (as ethanol)</td>
<td>-187.7°C~138.4°C</td>
</tr>
<tr>
<td>Boiling point</td>
<td>78.32°C (101.325KPa) (as ethanol)</td>
<td>-42.1°C~0.5°C</td>
</tr>
<tr>
<td>Firing point</td>
<td>13°C (airtight-type) (as ethanol)</td>
<td>-104.4°C~73.8°C</td>
</tr>
<tr>
<td>Ignition point</td>
<td>439°C (as ethanol)</td>
<td>405°C~550°C</td>
</tr>
<tr>
<td>Explosive range</td>
<td>No data</td>
<td>1.8~9.5vol%</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No data</td>
<td>0.248~1.275MPa (40°C)</td>
</tr>
<tr>
<td>Vapor density</td>
<td>No data</td>
<td>1.895~2.538kg/m³ (1MPa, 15.6°C)</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>0.803 (20°C)</td>
<td>0.551 (15°C)</td>
</tr>
<tr>
<td>Solubility</td>
<td>easily soluble in water</td>
<td>soluble in water</td>
</tr>
<tr>
<td>Octanol/water</td>
<td>-0.30 (lowPow) (as ethanol)</td>
<td>No data</td>
</tr>
<tr>
<td>Partition coefficient</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decomposition</td>
<td>No data</td>
<td>No data</td>
</tr>
<tr>
<td>temperature</td>
<td>No data</td>
<td>No data</td>
</tr>
<tr>
<td>Others</td>
<td>No data</td>
<td>No data</td>
</tr>
</tbody>
</table>

### 10. Stability and reactivity

**Chemical stability**
- Explosion-producing at 40°C or greater.
- Pressure in the container at room temperature: approx. 0.43MPa

**Possibility of hazardous reactions**
- Reactive with incompatible hazardous substances such as oxidant, and posing a risk of fire/explosion.
- Reactive with plastic, rubber, coating agent.

**Conditions to avoid**
- Storage in conditions of heat and humidity. Use close to fire.
- Contact with incompatible hazardous substances.

**Incompatible materials**
- Strong acid, Strong alkali, Oxidant, Calcium hypochlorite, Silver oxide.

**Hazardous decomposition product**
- Generates hazardous gas (e.g. CO, nitrogen oxide) by burning.

### 11. Toxicological information

**Acute toxicity (oral)**
- (Product data) N/A
- (Ingredient data: ethanol) Rat LD60: 6.2-17.8g/kg
- Rat LD50 > 5/kg
- Rat LD50: 13.7g/kg

**Acute toxicity (percutaneous)**
- (Product data) N/A

**Acute toxicity (inhalation: gas)**
- (Product data) N/A
- (Ingredient data: propane) Guinea-pig LC50(2hrs) > 55000ppm

**Wear a (organic) gas mask, dust mask, air-supplied respirator (in an enclosed space)**

**Solution-resistant protective gloves**

**Protective glasses/mask**

**Protective cloth, Boots, (solution-resistant) Apron, etc.**

**No eating and smoking while working.**

**Wash hands thoroughly after use.**
Guinea-pig LC50(4hrs)>38890ppm(ACGIH 7th, 2001)

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Product data</th>
<th>Animal data</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-butane</td>
<td>N/A</td>
<td>Rat LC50:277374ppm/4h</td>
</tr>
<tr>
<td>ethanol</td>
<td>N/A</td>
<td>OECD TAG404 test Rabbit not irritating</td>
</tr>
<tr>
<td>propane</td>
<td>N/A</td>
<td>For ACGIH(7th, 2001), slight erythema was transiently detected on human, however the primary skin irritation was negligible. Therefore, classified as &quot;out of category&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Product data</th>
<th>Animal data</th>
</tr>
</thead>
<tbody>
<tr>
<td>ethanol</td>
<td>N/A</td>
<td>OECD TAG404 test Rabbit not irritating American guidelines Rabbit not irritating</td>
</tr>
<tr>
<td>propane</td>
<td>N/A</td>
<td>Draize test Rabbit moderately</td>
</tr>
</tbody>
</table>

Recover from damage to the corneal epithelium and conjunctival congestion in 1-2 days.

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Product data</th>
<th>Animal data</th>
</tr>
</thead>
<tbody>
<tr>
<td>ethanol</td>
<td>N/A</td>
<td>No skin sensitization detected by animal testing</td>
</tr>
<tr>
<td>ethanol</td>
<td>N/A</td>
<td>Dominant lethality of rat/mouse and aneuploidy induction of mouse germ cell</td>
</tr>
<tr>
<td>ethanol</td>
<td>N/A</td>
<td>According to IARC, classified as &quot;group 1&quot; for the reason of being carcinogenic as an alcoholic beverage, however, this recognizes the relationship between alcohol and esophageal/liver cancer based on the epidemiological studies of people who have habitual intake of alcohol. ACGIH classifies ethanol of adverse factor in a working environment as A4 (noncarcinogenic to humans).</td>
</tr>
<tr>
<td>alcohol</td>
<td>N/A</td>
<td>Many cases of fetal harm/malformation caused by habitual intake of alcohol are being reported.</td>
</tr>
<tr>
<td>propane</td>
<td>N/A</td>
<td>Oral ethanol intake could cause acute poisoning to central nervous system, which results in death. Intake of 5000ppm (9.4mg/L) causes airway irritation, stupor, sleep disorder.</td>
</tr>
</tbody>
</table>

ACGIH refers to anesthetic action about the impact on people.
### 12. Ecological information

**Hazards to water environment (acute)**
- (Product data) N/A
- (Ingredient data : ethanol)
  - Classified as "out of category" based on 48hrs LC50=5463.9mg/L (crustacea (daphnia)).
- N/A
  - Biodegradability>70%(Test:CEC-L-33-A-93)

**Hazards to water environment (chronic)**
- (Product data) N/A
- (Ingredient data : ester lubricant)
  - Classified as "out of category" for the reason of low acute toxicity and not poor water solubility (aqueous solubility =
- (Ingredient data : ethanol)

**Others**
- No information

### 13. Disposal considerations

- Completely remove gas at the time of disposal.
- Waste from residues
  - After removing gas from the container completely, request an industrial waste disposal professional licensed by the local government for disposal of the residual liquid.
  - Or after punctuating the container and adsorbing the liquid with diatom earth etc, burn it little by little in an open incineration system.
- Contaminated containers
  - Segregate the waste after using up the content.
  - Do not throw it into the fire for the reason of risk for explosion even after using up the content.

### 14. Transport information

- See "7. Handling and Storage"
- Specific cautions and conditions for transportation
  - At the time of transportation, maintain a constant temperature of 40°C or less and load up with it not to fall/drop/be damaged. Adopt measures to prevent collapsing.
  - National regulations
    - Surface transportation
    - Maritime transportation
    - Air transportation
  - International regulations
    - UN classification
      - IMDG code : class 2
    - UN No.
      - 1950
    - Follow Fire defense law as well as other relevant transport regulations.
    - Follow "Ship Safety Act".
    - Follow "Aviation law".

### 15. Regulatory information
| **Industrial Safety and Health Act** | Ignitable substance, Flammable gas, Notifiable substances (Ethanol, Butane) |
| **Act on Port Regulations** | Enforcement regulation, provision 12 : Hazardous material (Ignitable liquid, High-pressure gas) |
| **Ship Safety Act** | High-pressure gas, Low-flash-point ignitable liquid |
| **Aviation Law** | High-pressure gas, Ignitable liquid |
| **High Pressure Gas Safety Act** | N/A (Liquefied gas, Flammable gas) |
| **Fire defense law** | However, follow the notice from government gazette and High-act. |
| **Shipping and storage regulations for dangerous goods** | IMDG code : class 2.1 (UN No. 1950) |
| **Water Quality Pollution** | Effluent standard : normal-hexane extracts (mineral oil etc.) 5mg/L : Ester lubricant |
| **Export Trade Control Order** | Annex 1, 16. Catch all control : Ester lubricant |
| **Poisonous and Deleterious Substances Control Law** | N/A |

### 16. Other information

| Informative literature | Ethanol MSDS  
Ester lubricant MSDS  
Liquefied petroleum gas MSDS  
All data of object substances under PRTR  
All data of object substances under Industrial Safety and Health Act  
All data of object substances under Poisonous and Deleterious Substance Control Law |
| Remarks | There may be a lack of sufficient information for the reason that all documents and literatures are not searched.  
And release of new findings or revision of conventional theory could change this information.  
This MSDS is not intended to ensure completeness/accuracy of information of information.  
Therefore, the product requires extreme caution in handling.  
The adequacy will be determined at your own risk. |