

## MATERIAL SAFETY DATA SHEET

# DN-201 GP

### 1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: **DN-201 GP**  
CREATION DATE: March 13, 2012  
REVISION DATE:  
MSDS PREPARED BY: Safety & Environment Control Section, TOK

#### **JAPAN**

SUPPLIER: TOKYO OHKA KOGYO CO., LTD.  
SECTION: Safety & Environment Control Section  
ADDRESS: 150 Nakamaruko, Nakahara-ku, Kawasaki City, Kanagawa Prefecture 211-0012,  
JAPAN  
TELEPHONE NUMBER: +81-44-435-3000  
FAX NUMBER: +81-44-435-3020  
EMERGENCY RESPONSE: +81-44-435-3001  
+81-44-435-3002

#### **USA**

SUPPLIER: TOKYO OHKA KOGYO AMERICA, INC.  
ADDRESS: 190 Topaz Street, Milpitas, California 95035, U.S.A.  
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EMERGENCY RESPONSE: +1-800-424-9300 (CHEMTREC for U.S.A.)  
+1-703-527-3887 (CHEMTREC for international)

### 2. COMPOSITION / INFORMATION ON INGREDIENTS

SIMPLE/MIXTURE: Mixture  
CHEMICAL NAME (GENERIC NAME): None  
SYNONYM (S): None  
INGREDIENT AND COMPOSITION:

INGREDIENTS	wt%	CHEMICAL FORMULA	CAS NO.
Propylene glycol monomethyl ether	70~55	CH <sub>3</sub> OCH <sub>2</sub> CH(OH)CH <sub>3</sub>	107-98-2
Propylene glycol monomethyl ether acetate	30~25	CH <sub>3</sub> CH(OCOCH <sub>3</sub> )CH <sub>2</sub> OCH <sub>3</sub>	108-65-6
Polyhydroxy styrene type resin	20~5	Trade Secret	Trade Secret
Photoacid generator	<1	Trade Secret	Trade Secret
Crosslinking agent	<5	Trade Secret	Trade Secret

OSHA REGULATORY STATUS:

This material is classified as hazardous under OSHA regulations.

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### 3. HAZARDS IDENTIFICATION

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**EMERGENCY OVERVIEW:**

Light yellow, flammable liquid with a characteristic odor.

Vapours may cause drowsiness and dizziness.

**POTENTIAL HEALTH EFFECTS:**

**SKIN CONTACT:**

Contact causes skin irritation. Prolonged skin contact may cause cracking or other damages on skin (such as dermatitis).

**EYE CONTACT:**

Contact causes eye irritation.

**INHALATION:**

Causes irritation of the nose or the respiratory tract, and may cause headache, nausea, vomit, dizziness, or unconsciousness. It may also decrease the central nervous system function.

**INGESTION:**

May nauseate and causes pain in esophagus and stomach if swallowed.

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### 4. FIRST AID MEASURES

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**SKIN CONTACT:**

Wash the affected part with plenty of running water and mild soap.

If irritation continues, immediately take the patient to a physician for examination and treatment.

**EYE CONTACT:**

Immediately rinse the eyes with running water to wash off the chemical completely.

Immediately take the patient to a physician for examination and treatment.

**INHALATION:**

Move the patient at once to fresh air.

Immediately take the patient to a physician for examination and treatment.

**INGESTION:**

Rinse the mouth with water.

Immediately take the patient to a physician for examination and treatment.

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### 5. FIRE FIGHTING MEASURES

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**FLAMMABLE PROPERTIES:**

MATERIAL	FLASH POINT	IGNITION POINT	EXPLOSION LIMIT
Product	34 °C	Not available	Not available
Propylene glycol monomethyl ether	33 °C	276 °C	3.0~12.0 vol%
Propylene glycol monomethyl ether acetate	47 °C	344 °C	1.5~7.0 vol%

**EXTINGUISHING MEDIA:**

Dry sand, foam, carbon dioxide, or dry chemical powder extinguisher.

**FIRE FIGHTING INSTRUCTIONS:**

Shut off fuel as much as possible.

Dry chemical or carbon dioxide should be used for small fires.

Evacuate unnecessary personnel to safe area.

Fire fighters should wear proper protective clothing.

Foam should be effective for large fires.

When sprayed, water should be effective for cooling and protection of the fire fighters. However, use of water may expand the fire.

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**6. ACCIDENTAL RELEASE MEASURES**

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Evacuate the leeward personnel.

Ventilate the area.

Quickly shut off all ignition sources.

Equip extinguishers in case of ignition.

Wear proper protective clothings.

When the leak is small, wipe it with cloths. Leave the cloth in the draft, and burn it off after solvent has evaporated.

When the leak is large, try to stop the flow with cloths, and collect the spilt solution in an empty container as much as possible.

Prevent spilt solution from entering sewers, watercourses, rivers, or fields.

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**7. HANDLING AND STORAGE**

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**HANDLING:**

Be careful in handling the container, and protect it from damages.

Wear proper protective clothings.

Use only in the well-ventilated area.

Seal the container after handling.

Avoid contact with oxidizing agents or reductants.

Shut off all sources of ignition.

The electric facility should be explosion proof.

Ground.

When moving the solution through pipings, ground the metallic part of the apparatuses, pipings and containers to prevent generation of electrostatic charges.

Pay attention to ventilation. This vapor is heavier than air, and easily stays at low position.

Do not expose to UV light. Use under tungsten or yellow light.

Solution should not remain in pipings when it is not used.

Water facility should be installed at every place where the solution is used. It should facilitate measures in case of adhesion or contact with eyes.

Do not bring contaminated protective tools, such as gloves, to the lounge.

Be careful of personal health after handling.

**STORAGE:**

Keep the container sealed, and store in a cool and dark place.

Keep away all sources of ignition.  
Do not heat.  
Do not let it evaporate without a reason.  
Store in well-ventilated area.

**OTHERS:**

Follow all national and local regulations.

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**8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

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**ENGINEERING CONTROLS:**

When handling, try to use closed apparatuses, equipment or partial ventilator.

**PERSONAL PROTECTIVE EQUIPMENT:**

RESPIRATORY PROTECTOR: Chemical cartridge respirator with cartridge to protect against the organic vapor.

Airline respirator.

EYE PROTECTOR: Chemical goggles.

HAND, SKIN AND BODY PROTECTOR: Gloves and clothing to cover the whole body.

**EXPOSURE GUIDELINES:**

INGREDIENTS	ACGIH TLV	OSHA PEL
Propylene glycol monomethyl ether	TWA 100 ppm (369 mg/m <sup>3</sup> ) STEL 150 ppm (553 mg/m <sup>3</sup> )	None established
Propylene glycol monomethyl ether acetate	None established	None established

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**9. PHYSICAL AND CHEMICAL PROPERTIES**

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APPEARANCE: Light yellow liquid  
ODOR: Characteristic odor  
SPECIFIC GRAVITY: Not available  
BOILING POINT: Not available  
SOLIDIFYING POINT: Not available  
RELATIVE VAPOR DENSITY: Not available  
SOLUBILITY IN WATER: Insoluble  
VAPOR PRESSURE: Not available  
pH: Not available

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**10. STABILITY AND REACTIVITY**

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STABILITY: Reactive to UV light. Use under tungsten or yellow light.  
CONDITION TO AVOID: Avoid heat, flames, sparks and other sources of ignition.  
MATERIALS TO AVOID: Oxidizing agents and reductants.  
HAZARDOUS DECOMPOSITION PRODUCTS: Emit carbon monoxide when burned with insufficient oxygen.  
HAZARDOUS POLYMERIZATION: Will not polymerize.

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**11. TOXICOLOGICAL INFORMATION (Only data for each component is available.)**

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**Propylene glycol monomethyl ether**

**ACUTE TOXICITY:**

Oral LD50 (rat): 5660 mg/kg

Oral LD50 (mouse): 11700 mg/kg

Inhalation LC50 (rat): 10000 ppm/5 hours

Inhalation LDLo (guinea pig): 15000 ppm/7 hours

Intraperitoneal LD50 (rat): 3720 mg/kg

Skin LD50 (rabbit): 13000 mg/kg

Intravenous LD50 (rat): 4200 mg/kg

**SUBCHRONIC TOXICITY AND CHRONIC TOXICITY:**

Oral rat (13 weeks) 0.5, 0.9, 1.8 or 3.6 mg/kg/day, 5 days/week caused dose-related central nervous system depression, reduced food intake and growth depression. Liver enlargement was accompanied by cell necrosis mainly in the peripheral parts of the lobules. The high dose caused appreciable mortality. The high dose also caused kidney injury.

Dermal rabbit (3 months) 2, 4, 6, or 9 g/kg/day. All the high doses and 8/9 of the 6 g/kg/day group died within 6 weeks. Deaths were associated with loss of body weight and narcosis. The stomachs of these animals were distended with food indicating gastric retention. Renal necrosis or slight granular degeneration of the tubules was also observed.

**MUTAGENIC EFFECT:**

Salmonella typhimurium TA98, TA100, TA1535, TA1537, TA1538 with and without metabolic activation negative.

**CARCINOGENIC EFFECT:**

No carcinogenic effects were noted in OSHA, EPA, EU, NTP, IARC, and ACGIH.

**TERATOGENIC EFFECT:**

Oral and subcutaneous rat, mouse, rabbit 0.03~2.0 mg/kg/day on days 18-21 of gestation. Only rat foetuses showed any effects, a delayed ossification of the skull at the highest dose (0.7 mg/kg).

Inhalation rat, lowest toxic concentration 3000 ppm/6 hours/day on days 6-15 of gestation, teratogenic effects.

**Propylene glycol monomethyl ether acetate**

**ACUTE TOXICITY:**

Oral LD50 (rat): 8532 mg/kg

Inhalation LC50 (rat): >4350 ppm

Intraperitoneal LD50 (mouse): 750 mg/kg

Skin LD50 (rabbit): >5000 mg/kg

**SUBCHRONIC TOXICITY AND CHRONIC TOXICITY:**

Inhalation of 300 ppm/6 hours/day caused no effects on rats. Exposure to 1000 ppm effected kidney, and male rat exposed to 3000 ppm showed increase of the liver weight and effected kidney.

Inhalation of concentrated mist or vapor caused headache, vomiting, and coma.

**MUTAGENIC EFFECT:**

Chromosome aberration test (mammalia) is negative.

**CARCINOGENIC EFFECT:**

No carcinogenic effects were noted in OSHA, EPA, EU, NTP, IARC, and ACGIH.

**TERATOGENIC EFFECT:**

Inhalation of 500 or 1500 ppm on rats on days 6-15 of gestation caused no effects.

Exposure to 3000 ppm showed fetotoxicity.

Inhalation of 110 ppm on rats on days 6-15 of gestation caused no effects. Exposure to 560 ppm showed maternal toxicity, and to 2800 ppm showed maternal toxicity, increase of slight spinal malformation, and fetotoxicity.

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**12. ECOLOGICAL INFORMATION (Only data for each component is available.)**

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**Propylene glycol monomethyl ether**

BIODEGRADABILITY: Biodegradable.

FISH TOXICITY:

Not toxic to brown trout, bluegill sunfish, yellow perch or goldfish at 5 ppm after 24 hours exposure.

OTHER INFORMATION ON ECOTOXICITY:

Octanol/Water Partition Coefficient: No relevant information found.

BOD: No relevant information found.

COD: No relevant information found.

**Propylene glycol monomethyl ether acetate**

BIODEGRADABILITY: Biodegradable.

FISH TOXICITY:

Fatal to brown trout after 21 hours and to yellow perch after 24 hours at 5 ppm. Not toxic to bluegill sunfish or goldfish after 24 hours at 5 ppm. Test condition; pH 7, dissolved oxygen content 7.5 ppm, total hardness (soap method) 300 ppm, methyl orange alkalinity 310 ppm, free carbon dioxide 5 ppm and temperature 12.8°C.

OTHER INFORMATION ON ECOTOXICITY:

Octanol/Water Partition Coefficient: No relevant information found.

BOD: No relevant information found.

COD: No relevant information found.

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**13. DISPOSAL CONSIDERATIONS**

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RCRA Hazardous waste ID: #D001

All excess material must be collected and transferred to a professional waste disposal company for incineration.

Carefully review information in - **7.HANDLING & STORAGE**.

Comply with all national and local regulations.

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**14. TRANSPORT INFORMATION**

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**U.S. Department of Transportation (DOT):**

PROPER SHIPPING NAME: Resin solution, flammable

HAZARD CLASS: 3 (Flammable Liquids)

IDENTIFICATION NUMBER: UN1866

PACKING GROUP: III

Keep away from incompatibilities and all sources of ignition.

Follow all national and local regulations.

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## 15. REGULATORY INFORMATION

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### U.S. REGULATION:

#### TSCA (Toxic Substances Control Act):

One or more components under Low Volume Exemption (LVE), all others TSCA registered.

#### CERCLA (Comprehensive Emergency Response, Compensation, and Liability Act):

HAZARDOUS SUBSTANCES: Not regulated

#### SARA TITLE III (Superfund Amendments and Reauthorization Act):

SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES: Not regulated

SECTION 311/312 HAZARD CATEGORIES:

Acute: Yes

Chronic: No

Fire: Yes

Reactive: No

Sudden release: No

SECTION 313 TOXIC CHEMICALS: Not regulated

#### STATE REGULATIONS:

**CALIFORNIA PROPOSITION 65:** Not regulated

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## 16. OTHER INFORMATION

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### NFPA RATINGS:

HEALTH=1, FIRE=3, REACTIVITY=1 (SCALE 0-4)

### MSDS STATUS:

Newly prepared.

### REFERENCE:

1. HSDB
2. RTECS
3. The Dictionary of Substance and Their Effects (The Royal Society of Chemistry)
4. Material Safety Data Sheet (of the raw material manufacturer)

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The information contained herein is based on current knowledge and experience; no responsibility is accepted that the information is sufficient or correct in all cases. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal of these materials and the safety and health of employees and customers and the protection of the environment.

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