SAFETY DATASHEET

According to JIS Z 7253:2019
Revision Date 31-Oct-2025
Version SDS-550+EX-01

1. PRODUCT AND COMPANY IDENTIFICATION

Product name	Smoke Tube Set, Smoke Generating Cartridge
Product code	No.550, No.551
Manufacturer	GASTEC CORPORATION 8-8-6 Fukayanaka, Ayase-city, Kanagawa 252-1195, Japan
Emergency telephone number	+81-467 - 79 - 3910 +81-467 - 79 - 3979
Recommended use	Airflow Testing
Usage Restrictions	For Airflow Testing Only

2. HAZARDS IDENTIFICATION

These products contain a mixture of propylene glycol and glycerin sealed within a container. The classification is based on the Components that may contact the human body during handling.

GHS CLASSIFICATION

Physical Dangers	Not classified
Health Hazards	Specific Target Organ Toxicity (Single Exposure):Category 1(Central nervous system, blood System) Category 3(Narcotic effects) Specific Target Organ Toxicity (Repeated Exposure): Category 1(Central nervous system, respiratory system)
Environmental Hazard	Not classified
HAZARDS SYMBOL	
Signal word	DANGER

Hazard statements

H370 Causes damage to organs (blood system, central nervous system)
H336 May cause drowsiness or dizziness
H372 Causes damage to organs though prolonged or repeated exposure (central nervous system)

Precautionary statement

Safety Precautions

P260 Do not breathe fume.
P264 Wash hands thoroughly handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.

First Aid:

P321 Specific treatment (see Section4 on this label).
P314 Get medical advice/attention if you feel unwell.
P308+P311 IF exposed or concerned: Call a POISON CENTER /doctor.

P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

Storage

P403+P235 Store in a well-ventilated area.
P405 Store under lock and key.

Disposal

P501 Entrust the disposal of contents and container to a licensed waste disposal contractor.

3. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE/MIXTURE	MIXTURE	
CHEMICAL IDENTITY	Propylene Glycol	Glycerin
SYNONYMS	Propane-1.2-diol	
CHEMICAL FORMULA	$C_3H_8O_2$ (76.09)	$C_3H_8O_3$(92.09)
CONTENT	50%	50%
CAS RN	57-55-6	56-81-5
ISHL No.	2-234	2-242
Impurities and/or Additives	No data available	
	※These values are not product specification values.	

4. FIRST AID MEASUREMENT

Inhalation	Remove victims to fresh air and keep resting in a comfortable position for breathing. If breathing stops, artificial respiration. Seek medical attention.
Skin contact	Immediately remove all contaminated clothing. If reusing contaminated clothing, wash it. If it comes into contact with skin, wash with plenty of water/appropriate agent. If skin irritation occurs: seek medical attention/treatment.
Eye contact	Rinse continuously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Seek medical attention.
Ingestion	Rinse mouth. Do not force vomiting. Immediately call a doctor.
Predicted immediate and delayed symptoms	No specific information on symptoms and effects available.
Protection of first aiders	The rescuer should wear appropriate eye and skin protection, depending on the circumstances.
Special precautions for doctors	Special treatment may be required.

5. FIRE FIGHTING MEASUREMENT

Extinguish media	Water spray,foam,drychemical powder, carbon dioxide, or dry sand.
Unsuitable extinguishing media	Do not use high-pressure water jet.
Special Hazards in Case of Fire	Generates toxic carbon oxides during combustion.
Special Extinguishing Methods	Evacuate all personnel except those involved to a safe location. Cool containers with water spray. If it is safe to do so, move product containers from the fire hazard area. Conduct firefighting operations from upwind if possible.
Special Protective Equipment and Precautions for Firefighters	Wear protective gloves/protective clothing/protective eyewear/protective face shield. Firefighters must wear full-face positive-pressure self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASUREMENT

Human Precautions, Protective Equipment, and Emergency Measures	Keep unauthorized personnel away from the affected area. Wear suitable personal protective equipment (PPE). Remove all sources of ignition and ensure adequate ventilation. Stop the leakage if it can be done without risk.

	Do not touch or walk through the spilled material.
Environmental cautions	Prevent from entering drains sewers, or waterways. Do not discharge into sewers, drains, or the environment. Dispose in accordance with local regulations.
Containment and purification methods/equipment	Absorb with inert materials (such as dry sand or soil) and collect into containers. If a large amount has leaked, build an embankment around the spill before treatment. Store the collected material in sealed containers with proper labeling. Use clean, anti-static tools to collect the absorbed material.
Recovery and neutralization	No data available
Measures to Prevent Secondary Accidents	Remove all sources of ignition (prohibit smoking, sparks, or open flames in the vicinity).

7. HANDLING AND STRAGE

Handling	
Technical measures	Do not breathe mist, vapor, or spray.
Fire and Explosion Prevention	Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking. Take precautionary measures against static discharge.
Local and General Ventilation	Provide adequate exhaust and ventilation equipment.
Precautions	Avoid contact with skin and eyes.
Avoidance of Contact	Avoid contact with acids, alkalis, and strong oxidizing agents (such as peroxides, chlorates, permanganates, and nitric acid).
Hygiene Measures	Avoid contact with eyes, skin, and clothing. Wash contaminated areas thoroughly after handling. Do not eat, drink, or smoke when using this product. Wash hands thoroughly after handling.
Storage	
Safe Storage Conditions	Store in a well-ventilated place. Keep the container tightly closed. Keep in a cool place and protect from direct sunlight.
	(Conditions to Avoid) Avoid direct sunlight, high temperatures, and ignition sources (such as open flames and sparks). Avoid water leakage and humidity.

8. EXPOSURE CONTROL/ PERSONAL PROTECTION

Administrative Control Concentration	None
Occupational Exposure Limits Established by the Minister of Health, Labour and Welfare	No data available
Japan Society for Occupational Health (JSOH)	No data available
ACGIH (American Conference of Governmental Industrial Hygienists)	No data available
Engineering Controls	Provide appropriate exhaust and ventilation systems. Install eye-wash facilities. Provide hand-washing and face-washing facilities.
Respiratory Protection	Wear appropriate respiratory protection if ventilation is inadequate.
Hand Protection	Wear impermeable gloves.
Eye/Face Protection	Wear safety glasses with side shields or chemical splash goggles.
Skin and Body Protection	Wear protective clothing.

Hygiene Measures	Handle in accordance with standards of industrial hygiene and safety. For products classified as “chemicals causing skin disorders” under the Industrial Safety and Health Regulations, use appropriate protective equipment in accordance with Ministry of Health, Labour and Welfare guidelines and manuals.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid
Color	Transparent
Odor	Odorless
Melting/Freezing Point	No data available
Boiling Point, Initial Boiling Point and Boiling Range	(Propylene glycol) 188.2 °C
Flammability	Flammable
Lower and Upper Explosion/Flammability Limits	No data available
Flash Point	(Propylene glycol) 109 °C
Auto-ignition Temperature	(Glycerin) 393 °C
Decomposition Temperature	No data available
pH	No data available
Kinematic Viscosity	No data available
Solubility (in water)	Soluble
Solubility (in solvents)	Soluble in organic solvents such as ethanol
n-Octanol/Water Partition Coefficient (log value)	No data available
Vapor Pressure	No data available
Density and/or Relative Density	No data available
Relative Gas Density	No data available
Particle Characteristics	No data available
Physical State	Liquid
Color	Transparent

10. STABILITY AND REACTIVITY

Reactivity	No data available.
Chemical Stability	Stable under normal storage and handling conditions.
Possibility of Hazardous Reactions	May react with strong oxidizing agents and cause fire.
Conditions to Avoid	Avoid direct sunlight, high temperatures, and ignition sources (such as open flames and sparks). Avoid contact with water and moisture.
Incompatible Materials	Acids, alkalis, and strong oxidizing agents (such as peroxides, chlorates, permanganates, and nitric acid).
Hazardous Decomposition Products	The following substances are produced by thermal decomposition. Carbon oxides

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Oral

[Classification Basis]
Based on (1) to (3), it was determined to be unclassified.
[Supporting Data]
(1) Rat LD50: 22,000 mg/kg (SIDS (2004))
(2) Rat LD50: 8,000–46,000 mg/kg (EPA Pesticide (2006))

	(3) Rat LD50: 21,000–33,700 mg/kg (PATTY (6th, 2012))
Dermal	Not classified Based on (1), the substance is not classified.(1) LD_{50} (rabbit): 20,800 mg/kg (SIDS, 2004)
Inhalation (Gas)	Not applicable The substance is a liquid according to GHS definition.
Inhalation (Vapor)	Classification not possible Insufficient data available.
Inhalation (Dust/Mist)	Classification not possible [Classification Basis] Unclassifiable due to insufficient data.
Skin Corrosion/Irritation	Insufficient data available. Classification: Not classified Based on (1) to (5), it was determined to be unclassified. 【Supporting Data】 (1) A report indicates that no irritation was observed when the undiluted substance was applied to human skin for 48 hours (SIDS (2004)). (2) A report indicates that no irritation was observed when the undiluted substance was applied to the skin of 6 humans for 2 hours (SIDS (2004)). (3) A report indicates that no irritation was observed in a skin irritation test using rabbits (OECD TG404) (SIDS (2004)). (4) A report indicates that no irritation was observed in a skin irritation test using rabbits (Drayes Modified Method) (SIDS (2004)). (5) A report indicates that this substance is non-irritant in a skin irritation test using rabbits (EPA OPPTS 870.2400) (EPA Pesticide RED (2006)).
Serious eye damage/irritation	Classification: Not classified 【Classification Basis】 Based on (1) and (2), it was determined to be unclassified. Note that (3) is an IPCS description, and (4) and (5) were deemed unusable for classification judgment due to insufficient data details. 【Supporting Data】 (1) Two rabbit eye irritation tests (OECD TG405) reported no irritation observed with application of the undiluted substance (SIDS (2004)). (2) An eye irritation test using rabbits (EPA OPPTS 870.2400) reported this substance as non-irritant (EPA Pesticide RED (2006)).
Respiratory Sensitization	Classification: Not classified [Classification Basis] Unclassifiable due to insufficient data.
SKIN SENSITIZATION	Classification: Not classified 【Classification Basis】 Based on (1) to (4), it was determined to be outside the classification. 【Supporting Data】 (1) A human skin patch test (n=104, GLP) reported that after sensitization induction by semi-occlusive/occlusive application of a 50% solution of this substance, subsequent semi-occlusive/occlusive application of the 50% solution did not induce sensitization and showed no positive reactions (SIDS (2004)). (2) A report indicates that in human skin patch tests (Drayes method, n=204), after sensitization induction by occlusive application of a 12% solution of this substance, no positive reactions were observed when sensitization was attempted by occlusive application of the 12% solution (SIDS (2004)). (3) Among seven Maximization tests (GPMT) using guinea pigs, only one test showed a weak positive result, while the other six tests were all negative (J. Am. Coll. Toxicol., 13 (1994)). (4) In a skin sensitization test using mice (OECD TG429, LLNA method, n=4), a 50% solution of this substance yielded a Stimulation Index (SI) of 1.2, while the substance itself yielded an SI of 1.6 (REACH registration information (Accessed Oct. 2018)).
GERM CELL MUTAGENICITY	Classification: Classification not possible 【Rationale for Classification】

Based on (1) to (3), it was determined that classification is not possible according to the guidance.
【Supporting Data】
(1) The dominant lethal test in rats (single or 5-day oral administration) was negative (SIDS (2004)).
(2) The in vivo chromosome aberration test using rat bone marrow (single or 5-day oral administration) was negative (SIDS (2004)).
(3) The in vivo micronucleus test using mouse bone marrow (single intraperitoneal administration) was negative (SIDS (2004)).

Carcinogenicity

Classification: Classification not possible
【Rationale for Classification】
No reports involving humans are available regarding carcinogenicity.
Available animal test results are limited to one animal species (1), and classification is not possible due to insufficient data.
【Supporting Data】
(1) A 2-year carcinogenicity study in rats (30 rats/sex/group) administered via mixed feed (males: 200–1,790 mg/kg/day; females: 300–2,100 mg/kg/day) showed no increase in tumor incidence (SIDS (2004)).
(2) No existing classification exists from domestic or international classification agencies.

Reproductive toxicity

Classification: Classification not possible
【Classification Rationale】
Based on the absence of reproductive or developmental toxicity observed in (1) the oral reproduction study and (2) and (3) the developmental toxicity studies using pregnant animals, the substance was classified as not classifiable.
【Supporting Data】
(1) In a continuous breeding study using mice administered via drinking water, doses of 10 and 100 mg/kg/day were administered for up to 98 days. No dose-related reproductive effects were observed in F0 and F1 parent animals, and no dose-related effects on survival or growth were observed in F1 and F2 offspring (SIDS (2004), Environmental Risk Initial Assessment Vol. 6: Preliminary Hazard Assessment Sheet (2008)).
(2) In a developmental toxicity study involving forced oral administration to pregnant rats during the organogenesis period (gestation days 6-15), no adverse effects were observed in either the dams or fetuses at doses up to 1,600 mg/kg/day (SIDS (2004), Environmental Risk Initial Assessment Volume 6: Preliminary Hazard Assessment Sheet (2008)).
(3) In a developmental toxicity study where pregnant rabbits were forcibly administered the substance during the organogenesis period (gestation days 6–18), maternal deaths (not dose-related) were observed in the 12–267 mg/kg/day groups. However, no developmental effects were observed in the fetuses up to the highest dose of 1,230 mg/kg/day (SIDS (2004), Environmental Risk Assessment Volume 6: Provisional Hazard Assessment Sheet (2008)).

Specific target organ and systemic toxicity (single exposure)

Category 1 (Central Nervous System, Hematopoietic System), Category 3 (Anesthetic Effects)
[Classification Rationale]
Based on human findings (1) to (3), the central nervous system and hematopoietic system are considered target organs. Furthermore, data from experimental animals (3) and (4) also indicate the nervous system and hematopoietic system as target organs. Anesthetic effects are also observed based on (3). Therefore, it is classified as Category 1 (Central Nervous System, Hematopoietic System) and Category 3 (Anesthetic Effects).
【Supporting Data】
(1) A 2-year-old boy developed central nervous system depression and metabolic acidosis after accidentally ingesting approximately 3 ounces of hair gel containing about 1.75–2.25% of this substance. The boy vomited repeatedly, became lethargic, and responded only to severe pain (ATSDR addendum (2008), SIDS (2004)).
(2) Acute poisoning symptoms from oral ingestion range from drowsiness to sensory paralysis, loss of consciousness, and coma. Other signs include hyperosmolar serum, lactic acidosis, and hypoglycemia (IPCS PIM 433 (Accessed Oct. 2018)).
(3) Acute toxicity symptoms from high-dose oral exposure include central nervous system depression and anesthetic effects. In rats and mice, these manifest as ataxia, ptosis, decreased spontaneous movement, trismus and limb rigidity, and reduced respiration (ATSDR addendum (2008)).

	(4) In a single-dose oral administration study in rats, decreases in red blood cell count, hemoglobin, and hematocrit, along with increases in reticulocytes, plasma hemoglobin, and osmolarity, were observed at doses of 730 mg/kg or higher within Category 2. Electron microscopic examination of red blood cells also revealed surface roughness and membrane disruption (SIDS (2004), ATSDR addendum (2008)).
Specific target organ and systemic toxicity (repeated exposure)	Category 1 (Central Nervous System, Respiratory System) [Classification Rationale] Based on human data (1) and (2), the central nervous system is considered a target for this substance, leading to the adoption of Category 1 (Central Nervous System). Furthermore, based on the experimental animal data in (3), effects on the respiratory system were observed at the Category 1 dose via the inhalation route, leading to the designation of Category 1 (Respiratory System). Note that the test concentration of 160 mg/m³ (51.4 ppm) in the data in (3) is below 90% of the saturated vapor pressure concentration (108.9 ppm) and is considered to be vapor without mist; therefore, the vapor standard was applied. [Supporting Data] (1) Repeated high-dose oral ingestion of this substance as a solvent in medication caused adverse symptoms of hypoglycemia and central nervous system depression in a 15-month-old infant. Symptoms rapidly improved upon discontinuation of the medication (PATTY (6th, 2012)). (2) An 11-year-old boy experienced a grand mal seizure after taking a medication containing this substance for over a year. Additionally, reports exist of central nervous system depression symptoms in patients who ingested phenytoin dissolved in this substance (IPCS PIM 443 (Accessed Oct. 2018)). (3) In a 13-week inhalation exposure study in rats (160–2,200 mg/m³, 6 hours/day, 5 days/week), nasal bleeding and increased ocular discharge occurred at concentrations of 160 mg/m³ (guidance value equivalent: 0.12 mg/L) or higher, and at 1,000 mg/m³ or higher, thickening of the respiratory epithelium accompanied by an increase in goblet cell count and mucin in the nasal cavity was observed (Ministry of the Environment Risk Assessment Vol. 6: Provisional Hazard Assessment Sheet (2008)).
Hazardous if swallowed	Classification not possible [Classification Basis] Classification not possible due to insufficient data.

12. ECOLOGICAL INFORMATION

Hazardous to the Aquatic Environment – Short-term (Acute)	Classification: Not classified Algae (Muremisakuzimo) 72-hour EC50 (growth rate) >1000 mg/L, Crustaceans (Daphnia magna) 48-hour EC50 (swimming inhibition) >1000 mg/L, Fish (Medaka) 96-hour LC50 >100 mg/L (both from Ministry of the Environment Ecotoxicity Tests: 2018). Therefore, it is classified as not applicable.
Hazardous to the Aquatic Environment – Long-term (Chronic)	Classification: Not classified Basis for classification: The substance is readily biodegradable (BOD degradation: 90%, Chemical Substances Control Law Database, 1991), and the following long-term toxicity data show no adverse effects. Therefore, the substance is not classified. Key data: - Algae (Pseudokirchneriella subcapitata): 72-hour NOEC (growth rate) = 1,000 mg/L - Crustacea (Daphnia magna): 21-day NOEC (reproduction) = 1,000 mg/L (Source: Ministry of the Environment, Ecotoxicity Test, 2018)
Hazardous to the Ozone Layer	Classification: Classification not possible Basis for classification: No data available.

13. DISPORSAL CONSIDERATION

Waste Disposal Methods	Dispose of contents/container in accordance with local and national regulations. Handle disposal at an approved waste disposal site. Do not discharge into sewers, soil, or waterways.
Contaminated Containers and Packaging	Dispose of the container only after the contents have been completely used up.

14. TRANSPORT INFORMATION

International Regulations	
UN Number / UN Classification	UN Number or ID Number: Not applicable Proper Shipping Name: Not applicable Class or Division: Not applicable Packing Group: Not applicable
IMDG Code (International Maritime Dangerous Goods Code)	UN Number or ID Number: Not applicable Proper Shipping Name: Not applicable Class or Division: Not applicable Packing Group: Not applicable
IATA (Dangerous Goods Regulations for Air Transport)	UN Number or ID Number: Not applicable Proper Shipping Name: Not applicable Class or Division: Not applicable Packing Group: Not applicable
Environmental Hazards	Marine Pollutant (Yes/No): Not applicable
Special Precautions for	No special safety measures data available.
Transport in Bulk According to MARPOL 73/78 Annex II and the IBC Code	Substance name: Glycerin Category of harmful liquid substances (Z category)
MARPOL Annex V – HME (Harmful to the Marine Environment)	Bulk marine transport under IMO regulations is not applicable. Domestic Regulations Applicable Laws: - Not subject to the Ship Safety Act. - Not subject to the Civil Aeronautics Act.

15.REGULATORY INFORMATION

Poisonous and Deleterious Substances Control Act	Not subject to the Poisonous and Deleterious Substances Control Act
Hazardous and harmful substances requiring labeling or notification	Name Labeling Hazardous/Harmful Substances Propylene Glycol (Appendix 9, effective April 1, 2025) Name Notification Hazardous/Harmful Substances Propylene glycol (Appendix 9, effective April 1, 2025)
Pollutant Release and Transfer Register (PRTR) Law	Not subject to the Promotion of Chemical Substance Management (PRTR Act).
Fire Service Act	Hazardous Materials Class 4: Flammable Liquid, Category 3 Petroleum-Based Water-Soluble Liquid Hazard Level III (Designated Quantity: 4.000L)
Chemical Substances Control Law (CSCL)	Priority Assessment Chemical Substance Propylene glycol (Cabinet Order No. 106 – Human health effects)

16. OTHER INFORMATION

References	- NITE Chemical Risk Information Platform (CHRIP) - Globally Harmonized System of Classification and Labelling of Chemicals (GHS), UN - Recommendations on the Transport of Dangerous Goods, 22nd Edition (2021, UN) - IATA Dangerous Goods Regulations, 64th Edition (2023) - 2020 Emergency Response Guidebook (US DOT) - 2023 TLVs and BEIs (ACGIH) - JIS Z 7252:2019 - JIS Z 7253:2019 - 2022 Occupational Exposure Limits (Japan Society for Occupational Health) - Ministry of Health, Labour and Welfare Notice No. 0111-1 (Jan. 11, 2022) - Supplier’s data/information - GESTIS Substance Database

- PubChem (Open Chemistry Database)

Other References

NITE CHRIP https://www.nite.go.jp/chem/chrip/chrip_search/systemTop

IATA dangerous Goods Regulation

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