

Issue date 13-Sep-2021

Revision Date 13-Sep-2021

Revision Number 1

1. Identification

Product Name PANDO 29D

Recommended use of the chemical and restrictions on use

Recommended use Cleaner

Details of the supplier of the safety data sheet

Supplier ThreeBond Fine Chemical Co., Ltd.
1-1 Oyama-cho, Midori-ku, Sagami-hara-shi, Kanagawa 252-0146 Japan

Emergency telephone number +81-42-703-7126 (Inquiries regarding SDS content)
+81-42-670-5333 (Inquiries regarding the product or SDS claim)

2. Hazard(s) identification

GHS - Classification

Aerosols	Category 1
Acute toxicity - Oral	Classification not possible
Acute toxicity - Dermal	Classification not possible
Acute toxicity - Inhalation (Gases)	Classification not applicable
Acute toxicity - Inhalation (Vapors)	Classification not possible
Acute toxicity - Inhalation (Dusts/Mists)	Classification not possible
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2B
Respiratory sensitization	Classification not possible
Skin sensitization	Classification not possible
Germ cell mutagenicity	Classification not possible
Carcinogenicity	Category 1A
Reproductive toxicity	Category 1A
Effects on or via lactation	No effects on or via lactation
Specific target organ toxicity (single exposure)	Category 1, Category 3
Category 1 circulatory system.	
Category 3 Target organ effects: Respiratory irritation, Narcotic effects.	
Specific target organ toxicity (repeated exposure)	Category 1
Category 1 Central nervous system.	
Category 2 liver.	
Aspiration hazard	Category 1
Acute aquatic toxicity	Category 2
Chronic aquatic toxicity	Category 2
Ozone	Classification not possible

GHS label elements



Signal word

Danger

Hazard statements

H315 - Causes skin irritation

H320 - Causes eye irritation

H350 - May cause cancer

H360 - May damage fertility or the unborn child

H370 - Causes damage to organs

H335 - May cause respiratory irritation

H336 - May cause drowsiness or dizziness

H372 - Causes damage to organs through prolonged or repeated exposure

H411 - Toxic to aquatic life with long lasting effects

H304 - May be fatal if swallowed and enters airways

H222 - Extremely flammable aerosol

H229 - Pressurized container: May burst if heated

H370 - Causes damage to the following organs: circulatory system.

H372 - Causes damage to the following organs through prolonged or repeated exposure: Central nervous system.

H373 - May cause damage to the following organs through prolonged or repeated exposure: liver.

Precautionary statements**Prevention**

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

Wear protective gloves/protective clothing/eye protection/face protection.

Wash face, hands and any exposed skin thoroughly after handling.

Do not breathe dust/fume/gas/mist/vapors/spray.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

Avoid release to the environment.

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Do not pierce or burn, even after use.

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

Obtain special instructions or technical data sheet before use.

Response

IF exposed or concerned: Get medical advice/attention.

IF exposed or concerned: Call a POISON CENTER or doctor.

Specific treatment (see section 4 on this SDS).

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical advice/attention.

IF SWALLOWED: Immediately call a POISON CENTER or doctor.

Do NOT induce vomiting.

IF ON SKIN: Wash with plenty of water and soap.

If skin irritation occurs: Get medical advice/attention.

Take off contaminated clothing and wash it before reuse.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Call a POISON CENTER or doctor if you feel unwell.

Collect spillage.

Storage

Store locked up.

Store in a well-ventilated place. Keep container tightly closed.

Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.

Disposal

Dispose of contents/container to an approved waste disposal plant.

Other hazards

No information available.

3. Composition/information on ingredients

Pure substance/mixture

Mixture

Chemical name	CAS No	Weight-%	ENCS Number	ISHL No
Butane	106-97-8	20-<30	(2)-4	-
Carbon dioxide	124-38-9	1-<5	(1)-169	(1)-169
Cyclopentane	287-92-3	55-<65	(3)-4166	3-(3)-25
Ethyl alcohol	64-17-5	1-<5	(2)-202	(2)-202
Methyl alcohol	67-56-1	0.1-<1	(2)-201	(2)-201
Branched and linear hexane	92112-69-1	1-<5	(2)-6	(2)-6
Isooctane	-	5-<15	-	-

This product contains ≥ 0.1 - $< 0.3\%$ of substance (s) that are classified for Reproductive toxicity Category 1/1A/1B/Lactation.

Pollutant Release and Transfer Registry (PRTR)

Not applicable

Industrial Safety and Health Law

ISHL Notifiable Substances

ISHL Notifiable Substances - information (safety data sheet) to be supplied; Industrial Safety and Health Law enforcement order Table 9 (related to Industrial Safety and Health Law article 57-2 and ISHL Ordinance Article 34-2-4)

Chemical name	CAS No	Category	Ordinance number
Butane	106-97-8	ISHL Notifiable Substances	482
Cyclopentane	287-92-3	ISHL Notifiable Substances	238
Ethyl alcohol	64-17-5	ISHL Notifiable Substances	061
Methyl alcohol	67-56-1	ISHL Notifiable Substances	560
Branched and linear hexane	92112-69-1	ISHL Notifiable Substances	520
Isooctane	-	ISHL Notifiable Substances	115

Harmful Substances Whose Names Are to be Indicated on the Label

Harmful Substances - names to be indicated on the label; Industrial Safety and Health Law enforcement order Table 9 (related to Industrial Safety and Health Law article 57 and ISHL Ordinance Article 33)

Chemical name	CAS No	Category	Ordinance number
Butane	106-97-8	Harmful Substances Whose Names Are to be Indicated on the Label	482
Cyclopentane	287-92-3	Harmful Substances Whose Names Are to be Indicated on the Label	238
Ethyl alcohol	64-17-5	Harmful Substances Whose Names Are to be Indicated on the Label	061
Branched and linear hexane	92112-69-1	Harmful Substances Whose Names Are to be Indicated on the Label	520
Isooctane	-	Harmful Substances Whose Names Are to be Indicated on the Label	115

Poisonous and Deleterious Substances Control Law

Not applicable

Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. (CSCL)

Not applicable

4. First-aid measures

General advice

Show this safety data sheet to the doctor in attendance. IF exposed or concerned: Get medical advice/attention. Immediate medical attention is required.

In case of inhalation

Remove to fresh air. Aspiration into lungs can produce severe lung damage. If breathing has stopped, give artificial respiration. Get medical attention immediately. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. If breathing is difficult, (trained personnel should) give oxygen. Get immediate medical advice/attention. Delayed pulmonary edema may occur.

In case of skin contact	If symptoms persist, call a physician. Wash off immediately with soap and plenty of water for at least 15 minutes.
In case of eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get medical attention if irritation develops and persists. If symptoms persist, call a physician.
In case of ingestion	Do NOT induce vomiting. Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. ASPIRATION HAZARD IF SWALLOWED - CAN ENTER LUNGS AND CAUSE DAMAGE. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. Get immediate medical advice/attention.
Most important symptoms/effects, acute and delayed	Difficulty in breathing. Coughing and/ or wheezing. Dizziness.
Self-protection of the first aider	Remove all sources of ignition. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Use personal protective equipment as required. Avoid contact with skin, eyes or clothing.
Note to physicians	Because of the danger of aspiration, emesis or gastric lavage should not be employed unless the risk is justified by the presence of additional toxic substances.

5. Fire-fighting measures

Suitable Extinguishing Media	Dry chemical. Carbon dioxide (CO ₂). Water spray.
Unsuitable extinguishing media	DO NOT EXTINGUISH A LEAKING GAS FIRE UNLESS LEAK CAN BE STOPPED.
Specific hazards arising from the chemical	Risk of ignition. Keep product and empty container away from heat and sources of ignition. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. Cylinders may rupture under extreme heat. Damaged cylinders should be handled only by specialists. Containers may explode when heated. In the event of fire, cool container with water spray.
Flammable properties	Containers may explode when heated.
Special extinguishing media Large Fire	Cool container with water spray. CAUTION: Use of water spray when fighting fire may be inefficient.
Special protective equipment and precautions for fire-fighters	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Evacuate personnel to safe areas. Use personal protective equipment as required. See section 8 for more information. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Take precautionary measures against static discharges. Avoid breathing dust/fume/gas/mist/vapors/spray.
For emergency responders	Use personal protection recommended in Section 8.
Environmental precautions	Refer to protective measures listed in Sections 7 and 8. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains.
Methods for containment	Keep out of drains, sewers, ditches and waterways. Stop leak if you can do it without risk. A vapor suppressing foam may be used to reduce vapors. Dike far ahead of spill to collect

runoff water. Flood with water to complete polymerization and scrape off floor.

Methods for cleaning up

Take precautionary measures against static discharges. Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers.

Prevention of secondary hazards

Clean contaminated objects and areas thoroughly observing environmental regulations.

Other information

Ventilate the area. Refer to protective measures listed in Sections 7 and 8.

7. Handling and storage

Handling

Advice on safe handling

Take equipment measures listed in Section 8. Wear protection gear. Use personal protection equipment. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not spray on an open flame or other ignition source. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use spark-proof tools and explosion-proof equipment. Handle product only in closed system or provide appropriate exhaust ventilation. Keep in an area equipped with sprinklers. Do not puncture or incinerate cans. Contents under pressure. In case of rupture. Avoid breathing vapors or mists. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Remove contaminated clothing and shoes. Take off contaminated clothing and wash before reuse.

Hygiene Measures

Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. Wear suitable gloves and eye/face protection. Avoid contact with skin, eyes or clothing.

Storage

Storage Conditions

Protect from sunlight. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). Keep in properly labeled containers. Do not store near combustible materials. Keep in an area equipped with sprinklers. Store in accordance with the particular national regulations. Store in accordance with local regulations. Store in a cool, dry area away from potential sources of heat, open flames, sunlight or other chemicals. Store locked up. Keep out of the reach of children. Store away from other materials.

8. Exposure controls/personal protection

Engineering controls

Showers
Eyewash stations
Ventilation systems.

Exposure guidelines

Chemical name	Japan Society of Occupational Health	ISHL Working Environmental Evaluation Standards - Administrative Control Levels	ACGIH TLV
Butane 106-97-8	TWA: 500 ppm TWA: 1200 mg/m ³	-	STEL: 1000 ppm explosion hazard
Carbon dioxide 124-38-9	TWA: 5000 ppm TWA: 9000 mg/m ³	-	STEL: 30000 ppm TWA: 5000 ppm
Cyclopentane 287-92-3	-	-	TWA: 600 ppm
Ethyl alcohol 64-17-5	-	-	STEL: 1000 ppm

Methyl alcohol 67-56-1	TWA: 200 ppm TWA: 260 mg/m ³ Skin ISHL/ACL: 200 ppm	200ppm	STEL: 250 ppm TWA: 200 ppm S*
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Biological occupational exposure limits

Chemical name	Japan Society of Occupational Health	ACGIH
Methyl alcohol 67-56-1	20 mg/L - urine (Methanol) - end of shift	15 mg/L - urine (Methanol) - end of shift

Environmental exposure controls Install local ventilation or seal source of substances. Install safety shower, hand wash, and eye wash station. Clearly indicate the location.

Personal protective equipment

Respiratory protection	In case of inadequate ventilation wear respiratory protection.
Hand protection	Impervious gloves. Wear suitable gloves.
Eye/face protection	Tight sealing safety goggles. Safety glasses with side shields are recommended for medical or industrial exposures.
Skin and body protection	Wear suitable protective clothing. Long sleeved clothing. Chemical resistant apron. Antistatic boots.

9. Physical and chemical properties

Information on basic physical and chemical properties

Physical state	Liquid
Color	Transparent clear
Odor	Solvent odor

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
Melting point / freezing point	no data available	
Boiling point / boiling range	no data available	
Flammability	no data available	
Upper/lower flammability or explosive limits	no data available	
Upper flammability or explosive limits		
Lower flammability or explosive limits		
Flash point	-20 °C	
Autoignition temperature	no data available	
Decomposition temperature	no data available	
pH	no data available	
Kinematic viscosity	no data available	
Dynamic viscosity	2 mPa •s	
Water solubility	Slightly soluble	
Solubility(ies)	no data available	
Partition Coefficient (n-octanol/water)	no data available	
Vapor pressure	no data available	
Relative vapor density	no data available	
Relative density	0.71	
Particle characteristics		
Particle Size	no data available	

Particle Size Distribution no data available

10. Stability and reactivity

Stability Stable under normal conditions.

Possibility of hazardous reactions React with strong acid. Could cause fire.

Conditions to avoid Heat.

Incompatible materials Strong oxidizing agents.

Hazardous decomposition products May generate harmful gas by incineration.

11. Toxicological information

Acute toxicity

Classification not possible.

Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (inhalation-dust/mist) 1,125.60 mg/l

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Butane	-	-	= 658 g/m ³ (Rat) 4 h
Cyclopentane	= 11400 mg/kg (Rat)	-	-
Ethyl alcohol	= 7060 mg/kg (Rat)	-	= 124.7 mg/L (Rat) 4 h
Methyl alcohol	= 6200 mg/kg (Rat)	= 15840 mg/kg (Rabbit)	= 22500 ppm (Rat) 8 h
Branched and linear hexane	= 15000 mg/kg (Rat)	-	-

Abbreviations and acronyms

Rat: Rat

Rabbit: Rabbit

Symptoms Difficulty in breathing. Coughing and/ or wheezing. Dizziness. Redness. May cause redness and tearing of the eyes.

Product Information

Ingestion Specific test data for the substance or mixture is not available. Potential for aspiration if swallowed. May cause lung damage if swallowed. Aspiration may cause pulmonary edema and pneumonitis. May be fatal if swallowed and enters airways. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Inhalation Intentional misuse by deliberately concentrating and inhaling contents may be harmful or fatal. Specific test data for the substance or mixture is not available. Aspiration into lungs can produce severe lung damage. May cause pulmonary edema. Pulmonary edema can be fatal. May cause irritation of respiratory tract.

Skin contact Repeated exposure may cause skin dryness or cracking. Specific test data for the substance or mixture is not available. Causes skin irritation. (based on components).

Eye contact Specific test data for the substance or mixture is not available. Irritating to eyes. (based on

components). Causes eye irritation.

Skin corrosion/irritation

Classification based on data available for ingredients. Irritating to skin.

Serious eye damage/eye irritation

Classification based on data available for ingredients. Irritating to eyes.

Respiratory or skin sensitization

Classification not possible.

Germ cell mutagenicity

Based on available data, the classification criteria are not met. Classification not possible.

Carcinogenicity

Contains a known or suspected carcinogen. Classification based on data available for ingredients. May cause cancer.

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical name	Japan	IARC
Ethyl alcohol 64-17-5	1A	Group 1

Legend

IARC (International Agency for Research on Cancer)

Group 1 - Carcinogenic to Humans

Reproductive toxicity

Contains a known or suspected reproductive toxin. Classification based on data available for ingredients. May damage fertility or the unborn child.

STOT - single exposure

Based on the classification criteria of the Globally Harmonized System as adopted in the country or region with which this safety data sheet complies, this product has been determined to cause systemic target organ toxicity from acute exposure. (STOT SE). Causes damage to organs. May cause respiratory irritation. May cause drowsiness or dizziness.

H370 - Causes damage to the following organs: circulatory system.

STOT - repeated exposure

Causes damage to organs through prolonged or repeated exposure.

H372 - Causes damage to the following organs through prolonged or repeated exposure: Central nervous system.

H373 - May cause damage to the following organs through prolonged or repeated exposure: liver.

Aspiration hazard

May be fatal if swallowed and enters airways.

12. Ecological information

Ecotoxicity

Toxic to aquatic life with long lasting effects.

Percentage for unknown hazards

0 % of the mixture consists of component(s) of unknown hazards to the aquatic environment.

Chemical name	Algae/aquatic plants	Fish	Crustacea
Cyclopentane	-	-	EC50: =10.5mg/L (48h,

			Daphnia magna)
Ethyl alcohol	-	LC50: 12.0 - 16.0mL/L (96h, Oncorhynchus mykiss) LC50: 13400 - 15100mg/L (96h, Pimephales promelas) LC50: >100mg/L (96h, Pimephales promelas)	LC50: 9268 - 14221mg/L (48h, Daphnia magna) EC50: =2mg/L (48h, Daphnia magna)
Methyl alcohol	-	LC50: 13500 - 17600mg/L (96h, Lepomis macrochirus) LC50: 18 - 20mL/L (96h, Oncorhynchus mykiss) LC50: 19500 - 20700mg/L (96h, Oncorhynchus mykiss) LC50: =28200mg/L (96h, Pimephales promelas) LC50: >100mg/L (96h, Pimephales promelas)	-

Persistence and degradability No information available.

Bioaccumulation No data available as this product.

Component Information

Chemical name	Partition coefficient
Butane 106-97-8	2.89
Cyclopentane 287-92-3	2.05
Ethyl alcohol 64-17-5	-0.32
Methyl alcohol 67-56-1	-0.77

Mobility in soil No information available.

Hazardous to the ozone layer Classification not possible. Based on available data, the classification criteria are not met.

Other adverse effects No information available.

13. Disposal considerations

Waste from residues/unused products Dispose of in accordance with national, state and local regulations. Consult industrial waste management companies for waste. Do not release this product to natural environment nor reclaim.

Contaminated packaging Dispose containers as same as residual of this product.

14. Transport information

IMDG

UN number or ID number UN1950
 UN proper shipping name Aerosols
 Description UN1950, Aerosols, 2.1, (-20°C c.c.), Marine pollutant
 Transport hazard class(es) 2.1
 Marine pollutant P
 EmS-No F-D, S-U
 Special Provisions 63,190, 277, 327, 344, 381, 959

ADR

UN/ID No.	UN1950
Proper shipping name	Aerosols
Description	UN1950, Aerosols, 2.1, (E), Environmentally Hazardous
Transport hazard class(es)	2.1
Environmental hazard	Yes
ERG code	10L
Special provisions	327, 625, 344, 190

IATA

UN/ID No.	UN1950
Proper shipping name	Aerosols, flammable
Description	UN1950, Aerosols, flammable, 2.1
Transport hazard class(es)	2.1
Special provisions	A145, A167, A802

Japanese regulations

UN Number	UN1950
Proper shipping name	Aerosols
Description	UN1950, Aerosols, 2.1
Hazard class	2.1
Special provisions	63, 190, 327, 344, 959

15. Regulatory information

National regulations**Pollutant Release and Transfer Registry (PRTR)**

Not applicable

Industrial Safety and Health Law**Harmful Substances Whose Names Are to be Indicated on the Label**

Harmful Substances - names to be indicated on the label; Industrial Safety and Health Law enforcement order Table 9 (related to Industrial Safety and Health Law article 57 and ISHL Ordinance Article 33)

ISHL Notifiable Substances

ISHL Notifiable Substances - information (safety data sheet) to be supplied; Industrial Safety and Health Law enforcement order Table 9 (related to Industrial Safety and Health Law article 57-2 and ISHL Ordinance Article 34-2-4)

Poisonous and Deleterious Substances Control Law

Not applicable

Explosives Control Law

Not applicable

High Pressure Gas Safety Act

Exemption

Fire Service Law:

Flammable liquids, group 4, 1st class petroleum, water-insoluble, hazard rank II, 200 liters

Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. (CSCL)

Not applicable

Ship (Marine Transportation) Safety Act

See section 14 for more information

Civil Aeronautics Act

See section 14 for more information

16. Other information

Revision Date

13-Sep-2021

Key or legend to abbreviations and acronyms used in the safety data sheet**Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

TWA	TWA (time-weighted average)	Ceiling	Maximum limit value
*	Skin designation	+	Sensitizers

Key literature references and sources for data

JIS Z 7252:2019 Classification of chemicals based on "Globally Harmonized System of Classification and Labelling of Chemicals (GHS)". JIS Z 7253:2019 Hazard communication of chemicals based on GHS-Labelling and Safety Data Sheet (SDS).

Disclaimer

This SDS complies with the requirements of JIS Z 7252:2019 and JIS Z 7253:2019 (Japan). The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.