

ORAFON R-600a

MATERIAL SAFETY DATA SHEET (MSDS)

ORAFON R-600a

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name : ORAFON R-600a
Supplier : ORANOSS CO., LTD.
Address : 89 Moo 12, Soi Raikhing 42, Phutthamonthon Sai 5 Road., Tambol Raikhing, Ampur Sampran, Nakhonpathom 73210 Thailand
Emergency Phone : Tel : +66 (0) 2105 0499 (Auto) Fax : +66 (0) 2105 0490

2. HAZARDS IDENTIFICATION

EC Classification of the substance or mixture

Hazard Class & category code:

Regulation (EC) No. 1272/2008 (CLP):

Physical hazards Flammable gases - Category 1 - Danger (H220)
Gases under pressure - Liquefied gas -Warning (H280)

Label Elements

Labelling Regulation EC 1272/2008 (CLP)

Hazard pictogram(s)



Signal word

Hazard statements

Precautionary statements

-Prevention

-Response

-Storage

Danger

H220 : Extremely flammable gas

H280 : Contains gas under pressure; may explode if heated.

P210 : Keep away from heat/sparks/open flames/hot surfaces – No smoking.

P377 : Leaking gas fire : Do not extinguish unless leak can be stopped safely.
P381 : Eliminate all ignition sources if safe to do so.

P410+P403 : Protect from sunlight. Store in a well-ventilated place.

US NFPA Classification

Health: 2 Flammability: 4 Reactivity: 0

Effects of Overexposure:

- Eye Contact** : Liquid can cause severe irritation, redness, tearing, blurred vision, and possible freeze burns.
Skin Contact : Contact with evaporating liquid can cause frostbite.
Ingestion : Aspiration Hazard!
Inhalation : Inhalation of vapor may produce anesthetic effects and feeling of euphoria. Prolonged overexposure can cause rapid breathing, headache, dizziness, narcosis, unconsciousness, and death from asphyxiation, depending on concentration and time of exposure.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name of the Substance : ISOBUTANE
Chemical Formula : C₄H₁₀
Component/Impurities : Contains no other components/impurities that will affect the classification of this product.

SUBSTANCE NAME	CAS NO	EC NO.	Contents %
Iso-butane	75-28-5	200-857-2	100

4. FIRST AID MEASURES

Registration No:	
Issue:	
Revision:	
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- Inhalation** : In high concentrations may cause asphyxiation. Symptoms may include loss of mobility and consciousness. Victim may not be aware of asphyxiation. In low concentrations may cause narcotic effects. Symptoms may include dizziness, headache, nausea and loss of coordination. Remove victim to well ventilated area. Keep victim warm and rested. Call for medical help. Apply artificial respiration if breathing has stopped.
- Skin Contact** : Frostbite: treat as thermal burns by flushing with lukewarm water for at least 15 minutes.
- Eye Contact** : Wash immediately, abundantly and thoroughly with lukewarm water for at least 15 minutes. If irritation persists, consult an ophthalmologist.
- Ingestion** : Not applicable.

5. FIRE-FIGHTING MEASURES

Specific Hazards Exposure to fires may cause cylinders to rupture or explode

Suitable Extinguishing Media carbon dioxide, regular dry chemical
Large fire Flood with fire water spray

Hazardous Decomposition Products Incomplete combustion may produce carbon monoxide

Other Information If possible during a fire, stop the flow of product. Move container away or cool with water spray. Do not extinguish a leaking gas flame unless absolutely necessary. Spontaneous/explosive re-ignition may occur.

6. ACCIDENTAL RELEASE MEASURES

Personal Protection Wear self-contained breathing apparatus. Evacuate area. Ensure adequate air ventilation. Eliminate all sources of ignition.

Environmental Precautions Try to prevent release of substance. Do not allow to enter drains or water courses or anywhere where dangerous accumulations can occur.

Methods for Cleaning Up Isolate spill area. Ventilate the area.

7. HANDLING AND STORAGE

Handling Use only in well ventilated areas. Ensure that all equipment is adequately earthed. Use only correctly specified equipment which is suitable for use with the product, its supply pressure and temperature. Keep away from all sources of ignition. Separate from oxidant gases and other oxidants in storage area Separate from oxidant gases and other oxidants in store.

Storage Store in a dry well ventilated place away from sources of heat and direct sunlight. Do not store in ambient temperatures of more than 50°C.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits
ISOBUTANE 800ppm(1900 mg/m³) NIOSH recommended TWA 10 hour(s)

Personal Protection Ensure adequate ventilation. Do not smoke

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9. PHYSICAL AND CHEMICAL PROPERTIES

Molecular Mass	58.12
Color	colorless gas
Odor	sweetish
Boiling Point	11 °F (-11.6 °C) at atmospheric pressure
Freezing Point	-254 °F (-159 °C) : calculated
Flash Point	<-83.0 °C
Autoignition Temperature	860 °F (460 °C)
Explosive Properties	vapor may form explosive mixtures with air
Flammability Limits	1.8 to 8.4 vol.% in air
Vapor Pressure	3.0 bar at 20°C
Liquid Density	556.9 kg/m ³ at 20 °C
Solubility	slightly soluble
Other Data	Gas is heavier than air. May accumulate in confined space, particularly at or below ground level.

10. STABILITY AND REACTIVITY

Stability	Can form explosive mixtures with air.
Reactivity	May react violently with oxidants.

11. TOXICOLOGICAL INFORMATION

General	No known toxicological effects from this product
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12. ECOLOGICAL INFORMATION

General	No known ecological damage caused by this product.
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13. DISPOSABLE CONSIDERATIONS

Disposal of Product	Do not discharge into areas where there is a risk of forming explosive mixture with air. Waste gas should be flared through a suitable burner with a flash back arrestor. Do not discharge into any place where its accumulation could be dangerous.
Disposal of Containers	Return all sized containers to supplier.

14. TRANSPORTATION INFORMATION

U.S. DOT 49 CFR 172.101

Proper Shipping Name	R600a
ID Number	UN 1969
Hazard Class or Division	2.1
Labeling Requirements	2.1

Canadian Transportation of Dangerous Goods

Shipping Name	R600a
UN Number	1969
Class	2.1

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15. REGULATORY INFORMATION

U.S. Regulation

CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4) : Not regulated
 SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.30): Not regulated
 SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.40) : Not regulated
 SARA TITLE III SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370.21)

ACUTE	Yes
CHRONIC	No
FIRE	Yes
REACTIVE	No
SUDDEN RELEASE	Yes

SARA TITLE III SECTION 313 (40 CFR 372.65): Not regulated
 OSHA PROCESS SAFETY (29 CFR 1910.119) : Not regulated

State Regulations
Canadian Regulations
National Inventory Status
TSCA 12(b) Export Notification
Canada Inventory(DSL/NDSL)

California Proposition 65 : Not regulated
 WHMIS CLASSIFICATION : A, B1
 U.S. INVENTORY(TSCA) : Listed on inventory
 Not listed
 Listed on inventory

16. OTHER INFORMATION

The information in this Material Safety Data Sheet only concerns the above-mentioned product and does not relate to use with other product(s) or in any process. This information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to ensure that the information is appropriate and correct for his special use of this product.

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