Date of issue: 04/03/2014
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Safety Data Sheet

1. Identification of the substance/mixture and of the company/undertaking

Product identifier:

Product name: 1-Butanol

Product code(SDS NO): 63130jis_E1-2

Details of the supplier of the safety data sheet

Manufacturer/Supplier: JUNSEI CHEMICAL CO., LTD.
Address: 1-6, Ohmano-Cho, Koshigaya, Saitama 343-0844, Japan
Division: Quality Assurance Department
Telephone number: +81-48-986-6161
FAX: +81-48-989-2787
e-mail address: shiyaku-t@junsei.co.jp

2. Hazards identification

GHS classification and label elements of the product

Classification of the substance or mixture

Physiacal and chemical hazards

Flammable liquids: Category 3

HEALTH HAZARDS

Skin corrosion/irritation: Category 2

Serious eye damage/eye irritation: Category 2A

Specific target organ toxicity - single exposure: Respiratory tract irritation Category 3

Specific target organ toxicity - single exposure: Narcosis Category 3

Specific target organ toxicity - repeated exposure: Category 1(central nervous system, auditory organ)

(Note) GHS classification without description: Not applicable/Out of classification/Not classifiable

Label elements

Signal word: Danger

HAZARD STATEMENT

Flammable liquid and vapor

Causes skin irritation

Causes serious eye irritation

May cause respiratory irritation

May cause drowsiness or dizziness

Causes damage to organs through prolonged or repeated exposure

PRECAUTIONARY STATEMENT

Prevention

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Keep container tightly closed.

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

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

Use only outdoors or in a well-ventilated area.

Wash contaminated parts thoroughly after handling.

Wear protective gloves/eye protection/face protection.
Wear eye protection/face protection.
Do not eat, drink or smoke when using this product.

Response

In case of fire: Use appropriate media for extinction.
Get medical advice/attention if you feel unwell.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF ON SKIN: Wash with plenty of soap and water.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
If skin irritation occurs: Get medical advice/attention.
Take off contaminated clothing and wash it before reuse.
IF IN EYES: 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.

Storage

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

Disposal

Dispose of contents/container in accordance with local/national regulation.

Physical and Chemical hazards

Flammable liquid. Vapor/air mixture may explode.

3. Composition/information on ingredients

Mixture/Substance selection:

Substance

Common name, synonyms: n-Butyl alcohol

Ingredient name:1-Butanol
Content(%):98.0 <
Chemical formula:C4H10O
Chemicals No, Japan:2-3049
CAS No.:71-36-3
MW:74.12
ECNO:200-751-6

4. First-aid measures

Descriptions of first-aid measures

General measures

Get medical attention/advice if you feel unwell.

IF INHALED

Remove person to fresh air and keep comfortable for breathing.
Call a POISON CENTER or doctor/physician if you feel unwell.

IF ON SKIN (or hair)

Take off immediately all contaminated clothing. Rinse skin with water/shower.
Wash with plenty of soap and water.
If skin irritation or rash occurs: Get medical advice/attention.
If skin irritation occurs: Get medical advice/attention.

IF IN EYES

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

Rinse mouth. Do NOT induce vomiting.

Call a POISON CENTER or doctor/physician if you feel unwell.

Most important symptoms and effects, both acute and delayed

(Symptoms when inhalation or ingestion)

Cough. Sore throat. Headache. Dizziness. Drowsiness. Abdominal pain. Nausea. Diarrhoea. Vomiting.

(Symptoms when skin and/or eye contact)

Redness. Pain. Dry skin.

5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

In case of fire, use water mist, foam, dry powder, CO2, dry sand.

Unsuitable extinguishing media

Do not use direct water jet.

Specific hazards arising from the substance or mixture

Containers may explode when heated.

Fire may produce irritating, corrosive and/or toxic gases.

Runoff from fire control or dilution water may cause pollution.

Advice for firefighters

Specific fire-fighting measures

Evacuate non-essential personnel to safe area.

Cool container with water spray.

Special protective equipment and precautions for fire-fighters

Wear fire/flame resistant/retardant clothing.

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

Firefighters should wear self-contained breathing apparatus with full face peace operated positive pressure mode.

6. Accidental release measures

Personnel precautions, protective equipment and emergency procedures

Keep unauthorized personnel away.

In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.

Ventilate area after material pick up is complete.

Wear proper protective equipment.

PUBLIC SAFTY: Ventilate closed spaces before entering.

Environmental precautions

Runoff to sewer may create fire or explosion hazard.

Vapor explosion hazard indoors, outdoors or in sewers.

Avoid release to the rivers, lakes, ocean and groundwater.

Methods and materials for containment and cleaning up

Absorb spill with inert material (dry sand, earth, et al), then place in a chemical waste container.

Use clean non-sparking tools to collect absorbed material.

All equipment used when handling the product must be grounded.

Preventive measures for secondary accident

Collect spillage.

Stop leak if you can do it without risk.

ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).

Prevent entry into waterways, sewers, basements or confined areas.

7. Handling and storage

Precautions for safe handling

Preventive measures
(Exposure Control for handling personnel)
Do not breathe dust/fume/gas/mist/vapors/spray.
(Protective measures against fire and explosion)
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Exhaust/ventilator
Exhaust/ventilator should be available.
Safety treatments
Avoid contact with skin.
Avoid contact with eyes.
Avoid breathing dust, fume, gas, mist or vapor.
Safety Measures/Incompatibility
Use only outdoors or in a well-ventilated area.
Wear protective gloves, protective clothing or face protection.
Wear protective gloves and face protection.
Wear eye protection/face protection.
Use personal protective equipment as required.
When using do not eat, drink or smoke.
Conditions for safe storage, including any incompatibilities
Recommendation for storage
Store in a well-ventilated place. Keep container tightly closed.
Keep cool. Protect from sunlight.
Store locked up.

8. Exposure controls/personal protection

Control parameters
Control value
Japan control value (1995) <= 25ppm
Adopted value
JSOH(1987) (ceiling limit) 50ppm; 150mg/m3 (dermal)
ACGIH(1998) TWA: 20ppm (Eye & URT irr)
OSHA-PEL
TWA 100ppm, 300mg/m3
Exposure controls
Appropriate engineering controls
Do not use in areas without adequate ventilation.
Eye wash station should be available.
Washing facilities should be available.
Individual protection measures
Respiratory protection
Wear respiratory protection.
Hand protection
Wear protective gloves. Recommended material(s): nitrile, butyl rubber, viton
Consult with your glove and/or personnel equipment manufacturer for selection of appropriate compatible materials.
Eye protection
Wear chemical safety goggle.
Wear eye/face protection.

Safety and Health measures

Wash ... thoroughly after handling.

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

Take off contaminated clothing and wash it before reuse.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical properties

Appearance: Liquid

Color: Colorless

Odor: Characteristic odor

Odor threshold: 0.3600～150.000 mg/m3

pH data N.A.

Phase change temperature

Initial Boiling Point/Boiling point: 117℃

Melting point/Freezing point: -90℃

Decomposition temperature data N.A.

Flash point: (C.C.) 29℃

Auto-ignition temperature: 345℃

Explosive properties: Flammability or explosive limit

Lower limit: 1.4 vol %

Upper limit: 11.3 vol %

Vapor pressure: 0.6 kPa (20℃)

Vapor density data N.A.

Relative Vapor Density (Air=1): 2.6

Relative density of the Vapor/air-mixture at 20℃ (Air = 1): 1.01

Specific gravity/Density: 0.81g/cm3(20℃)

Viscosity: 2.947mPas(20℃)

Solubility

Solubility in water: 63.2g/liter(25℃)

Solubility in solvent: Very soluble in acetone; miscible with ethanol and diethyl ether.

n-Octanol /water partition coefficient: log Pow0.9

10. Stability and Reactivity

Reactivity

Runaway polymerization will not occur.

Chemical stability

Stable under normal storage/handling conditions.

Flammable.

Possibility of hazardous reactions

Reacts with aluminium when heated to 100℃ and strong oxidants such as chromium trioxide.

This produces flammable/explosive gas.

Attacks some forms of plastic(e.g. Polyvinyl chloride), rubber(e.g. Natural rubber) and coatings.

Conditions to avoid

Contact with incompatible materials.

Open flames. Heat. Sparks.

Incompatible materials

Strong oxidizing agents, Aluminium.

Hazardous decomposition products

Carbon oxides, Hydrogen gas

11. Toxicological Information

Information on toxicological effects

Acute toxicity

Acute toxicity (Oral)

[GHS Cat. Japan, base data]

rat LD50=2510 mg/kg (ACGIH 7th, 2001)

Acute toxicity (Dermal)

[GHS Cat. Japan, base data]

rabbit LD50=3402 mg/kg (SIDS, 2005)

Acute toxicity (Inhalation)

[GHS Cat. Japan, base data]

mist : rat LC50=8000 ppm/4hr(equivalent : 24.2 mg/L) (MOE Risk Assessment vol.4, 2005)

Irritant properties

Skin corrosion/irritation

[GHS Cat. Japan, base data]

rabbit : moderate irritating (DFGOT vol.19, 2003)

Serious eye damage /irritation

[GHS Cat. Japan, base data]

human : eye irritating (PATTY 6th, 2012)

No Allergenic and sensitizing effects data available

No Mutagenic effects data available

Carcinogenicity

EPA-Group D; Not Classifiable as to Human Carcinogenicity(1986)

No reproductive toxicity data available

Delayed and immediate effects and also chronic effects from short- and long-term exposure

STOT

STOT-single exposure

[cat.3(resp. irrit.)]

[Japan published data]

Respiratory tract irritation (PATTY 6th, 2012)

[cat.3(drow./dizz.)]

[Japan published data]

Narcosis (PATTY 6th, 2012)

STOT-repeated exposure

[cat.1]

[Japan published data]

CNS; hearing/hearing system (MOE risk assessment vol.4, 2005)

No Aspiration hazard data available

12. Ecological Information

Ecotoxicity

Aquatic toxicity

Aquatic acute toxicity component(s) data

[GHS Cat. Japan, base data]

Fish(Atheriniformes) LC50 > 100 mg/L/96hr (MOE eco-toxicity tests of chemicals, 1996)

Aquatic chronic toxicity component(s) data

[GHS Cat. Japan, base data]

Crustacea (Daphnia magna) NOEC=4.1 mg/L/21days (MOE Risk Assessment, 2005)

Water solubility

6.32 g/100 ml (25℃) (HSDB, 2013)

Persistence and degradability

Readily biodegradable [BOD20:92% (SIDS, 2005)]

Bioaccumulative potential

log Pow=0.9 (ICSC, 2005)

13. Disposal considerations

Waste treatment methods

Dispose of contents/container in accordance with local/national regulation.

14. Transport Information

UN No, UN CLASS

UN number: 1120

UN proper shipping name: BUTANOLE

Transport hazard class(es): 3

Packing group: III

ERG GUIDE NO.: 129

15. Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture

Transport in bulk according to Annex II of MARPOL73/78 and IBC Code

Noxious Liquid ; Cat. Z

1-Butanol

Flammable Liquid

1-Butanol

US major regulations

TSCA

1-Butanol

Other regulatory information

We are not able to check up the regulatory information in regard to the substances in your country or region, therefore, we request this matter would be filled by your responsibility.
Regulatory information with regard to this substance in your country or in your region should be examined by your own responsibility.
Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

16. Other information

GHS classification and labelling

Flam. Liq. 3: H226 Flammable liquid and vapor
Skin Irrit. 2: H315 Causes skin irritation
Eye Irrit. 2A: H319 Causes serious eye irritation
STOT SE 3: H335 May cause respiratory irritation
STOT SE 3: H336 May cause drowsiness or dizziness
STOT RE 1: H372 Causes damage to organs through prolonged or repeated exposure

Reference Book

Globally Harmonized System of classification and labelling of chemicals, (5th ed., 2013), UN Recommendations on the TRANSPORT OF DANGEROUS GOODS 19th edit., 2015 UN Classification, labelling and packaging of substances and mixtures (table3-1 ECNO6182012)
2016 EMERGENCY RESPONSE GUIDEBOOK (US DOT)
2017 TLVs and BEIs. (ACGIH)
http://monographs.iarc.fr/ENG/Classification/index.php
Supplier's data/information
NITE Chemical Risk Information Platform(NITE-CHRIP)http://www.safe.nite.go.jp/japan/db.html

GHS Classification Guidance for Enterprises 2013 Revised Edition （August, 2013,METI）

General Disclaimer

This information contained in this data sheet represents the best information currently available to us. However, no warranty is made with respect to its completeness and we assume no liability resulting from its use. It are advised to make their own tests to determinate the safety and suitability of each such product or combination for their own purposes.

The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet is to describe the products in terms of their safety requirements. The data does not signify any warranty with regard to the products' properties.

The GHS classification data given here is based on current Japan official data (NITE published in 2016).