

SAFETY DATA SHEET

According to regulations (CE) No. 1907/2006 and 2015/830



Revision date : 07/12/2015

Version 15.1

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

1.1 Product identifier

Catalogue N° **943**

Product name **Butanol with bromophenol blue**

REACH Registration
Number

This product is a mixture. REACH Registration Number see section 3.

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses Reagent for analysis

1.3 Details of the supplier of the safety data sheet

Company Laboratoires Dujardin-Salleron 37210 Noizay France Phone. +33 (0)2 47 25 58 25
mail: info@dujardin-salleron.com - website : www.dujardin-salleron.com

1.4 Emergency phone number INRS : +33 (0)1 45 42 59 59

SECTION 2. Hazards identification

2.1 Classification of the substance or mixture

Classification (Regulation (EC) N° 1272/2008)

Flammable liquid, Category 3, H226
Acute toxicity, Category 4, Oral, H302
Specific target organ toxicity - single exposure, Category 3, H335
Skin irritation, Category 2, H315
Serious eye damage, Category 1, H318
Specific target organ toxicity - single exposure, Category 3, H336

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements

Labeling (Regulation (EC) N° 1272/2008)

Hazard pictograms



Signal word

Danger

Hazard statements

H226 Flammable liquid and vapors.
H302 Harmful if swallowed.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H335 May cause respiratory irritation.
H336 May cause drowsiness or dizziness.

Precautionary statements

Prevention

P210 Keep away from heat.
P280 Wear eye protection.

Response

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

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P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P313 Get medical advice/ attention.

2.3 Other hazards

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

SECTION 3. Composition/information on ingredients

Chemical nature: Solution

3.1 Substance : not applicable

3.2 Mixture:

Hazardous components (Regulation (EC) No 1272/2008)

Chemical name (Concentration)

n butanol ($\leq 100\%$)

This substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

CAS N°	EC N°	REACH N°	Classification
71-36-3	200-751-6	01-2119484630-38-XXXX	Flammable liquid, Category 3, H226 Acute toxicity, Category 4, H302 Specific target organ toxicity - single exposure, Category 3, H335 Skin irritation, Category 2, H315 Serious eye damage, Category 1, H318 Specific target organ toxicity - single exposure, Category 3, H336

For the full text of the H-Statements mentioned in this Section, see Section 16.

Non-hazardous components (Regulation (EC) No 1272/2008)

Chemical name (Concentration)

Bromophenol blue ($\approx 0,1\%$)

CAS N°	EC N°	REACH N°	Classification
76-59-5	200-971-2	-	Substance not classified as dangerous according to European Union legislation

SECTION 4. First aid measures

4.1 Description of first aid measures

After inhalation: fresh air. Consult doctor if feeling unwell.

After skin contact: wash off with plenty of water. Remove contaminated clothing.

After eye contact: rinse out with plenty of water. Call in ophthalmologist.

After swallowing: caution if victim vomits. Risk of aspiration! Keep airways free. Pulmonary failure possible after aspiration of vomit. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

Irritant effects, Cough, depressed respiration, Shortness of breath, Drowsiness, Dizziness, narcosis, inebriation, Nausea, Vomiting, cardiovascular disorders, drowsiness, CNS disorders

4.3 Indication of any immediate medical attention and special treatment needed

No information available.

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SECTION 5. Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Water, carbon dioxide (CO₂), foam, dry powder.

Unsuitable extinguishing media

For this mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Combustible.

Vapors are heavier than air and may spread along floors.

Forms explosive mixtures with air at elevated temperatures.

Development of hazardous combustion gases or vapors possible in the event of fire.

5.3 Advice for firefighters

Special protective equipment for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information

Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment, see section 8.

6.2 Environmental precautions

Do not empty into drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Trivorex ® (PREVOR)). Dispose of properly. Clean up affected area.

6.4 Various indications

Remove immediately spillages of material.

SECTION 7. Handling and storage

7.1 Precautions for safe handling

Observe label precautions.

Work under hood. Do not inhale substance/mixture. Avoid generation of vapors/aerosols.

Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with mixture.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

Storage temperature: no restrictions.

7.3 Specific end use(s)

See exposure scenario in the Annex to this SDS.

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SECTION 8. Exposure controls / personal protection

8.1 Control parameters

Components with occupational exposure limit values

n-Butanol (71-36-3)

Basis	Value	Threshold limits	Remarks
Limit value for occupational exposure (VLEP France)	Short Term Exposure limit (STEL)	50 ppm 150 mg/m ³	Indicative limit value

Derived No Effect Level (DNEL)

Worker DNEL, long term	Local effects	inhalation	310 mg/m ³
Consumer DNEL, long term	Local effects	inhalation	55 mg/m ³
Consumer DNEL, long term	Systemic effects	oral	3,125 mg/kg Body weight

Predicted No Effect Concentration (PNEC)

n-Butanol (71-36-3)

Fresh water	Fresh water sediment	Marine water	Marine sediment	Aquatic intermittent release	Sewage treatment plant	Soil
0.082 mg/l	0.178 mg/kg	0.0082 mg/l	0.0178 mg/kg	2.25 mg/l	2476 mg/l	0.015 mg/kg

8.2 Exposure controls

Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.
See section 7.1.

Individual protection measures

Wear suitable chemical resistant protective clothing, provided with a CE marking

Eye/face protection

Safety glasses

Hand protection

Wear exclusively gloves special chemistry provided with a CE marking. If gloves must be reused, clean them before removing them and keeping them in a well ventilated place.

full contact:

Glove material: Nitrile rubber
Glove thickness: 0.38 mm
Break through time: > 480 min

Splash contact:

Glove material: Nitrile rubber
Glove thickness: 0,11 mm
Break through time: > 480 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374.

Respiratory protection

Required when vapors/aerosols are generated.

Recommended filter type: A-(P 2)

The company has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented

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Environmental exposure controls

Do not empty into drains.

Risk of explosion.

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form	liquid
Color	yellow-orange
Odor	alcohol
Odor Threshold	0.004 – 48.7 ppm
pH	7 à 10 g/l at 20°C.
Melting point	-89 °C.
Boiling point/boiling range	116-118°C at 1013 hPa.
Flash point	34 °C.
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	1.4 % (V).
Upper explosion limit	11.3 % (V).
Vapor pressure	6.7 hPa at 20°C.
Relative vapor density	2.6 at 20°C.
Relative density	0.81 g/cm ³ at 20°C
Water solubility	soluble à 20°C.
Partition coefficient: n - octanol/water	log Pow : 0.88.
Auto-ignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	2.95 mPa.s at 20°C.
Explosive properties	Not classified as explosive.
Oxidizing properties	none

9.2 Other data

Ignition temperature	340°C (Method: DIN 51794)
Bulk density	No information available.
Refraction index	No information available.
Dissociation constant	No information available.
Surface tension	No information available.
Henry constant	No information available.

SECTION 10. Stability and reactivity

10.1 Reactivity

Vapors/air-mixtures are explosive at intense warming.

10.2 Chemical stability

The product is chemically stable for 2 years, under standard ambient conditions (room temperature).

10. Possibility of hazardous reactions

Risk of ignition or formation of inflammable gases or vapors with:

strong oxidizing agents, chromium(VI) oxide

Exothermic reaction with:

Alkali metals, Alkaline earth metals, Aluminum, strong reducing agents, Acid chlorides

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10.4 Conditions to avoid

Heating.

A range from approx. 15 Kelvin below the flash point is to be rated as critical.

10.5 Incompatible materials

rubber, various plastics.

10.6 Hazardous decomposition products

no information available

SECTION 11. Toxicological information

11.1 Information on toxicological affects

Acute oral toxicity

LD50 rat: 790 mg/kg (RTECS)

Absorption

Symptoms: Nausea, Vomiting, Risk of aspiration upon vomiting., Pulmonary failure possible after aspiration of vomit.

Acute inhalation toxicity

Absorption

Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract

LC50 rat > 18 mg/l, 4 h (IUCLID)

LCLO human: 0.08 mg (IUCLID)

Acute dermal toxicity

LD50 rabbit: 3,400 mg/kg (RTECS)

Irritant and caustic effect

Skin irritation

Causes skin irritation.

Rabbit, result: Irritations (IUCLID)

Eye irritation

Causes serious eye damage.

Rabbit, result: severe irritations (OECD Test Guideline 405)

Sensitization

This information is not available

Specific target organ toxicity - single exposure

May cause respiratory irritation. May cause drowsiness or dizziness

Specific target organ toxicity - repeated exposure

This information is not available

CMR effects (carcinogenicity, mutagenicity and toxic for reproduction)

Carcinogenicity

This information is not available

Germ cell mutagenicity Genotoxicity in vitro

Ames test

Salmonella typhimurium

Result: negative (IUCLID)

Reproductive toxicity

This information is not available

Teratogenicity

This information is not available

Aspiration hazard

This information is not available

11.2 Further information

After absorption: CNS disorders, dizziness, inebriation, drop in blood pressure, cardiovascular disorders, depressed respiration, narcosis.

Damage to liver, kidney

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Further data:

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12. Ecological information

12.1 Toxicity

Toxicity to fish

LC50 *Leuciscus idus* (Golden orfe): 1,200 – 1,700 mg/l; 96 h (IUCLID)

Toxicity to daphnia and other aquatic invertebrates

EC50 *Daphnia magna*: 1,983 mg/l; 48 h (DIN 38412)

Toxicity to daphnia and other aquatic invertebrates

IC50 *Desmodesmus subspicatus* (green algae): > 500 mg/l; 72 h (IUCLID)

Toxicity to bacteria

EC10 *Pseudomonas putida*: 2,250 mg/l; 16 h (IUCLID)

12.2 Persistence and degradability

Biodegradability 98 %; 28 d (OECD Test Guideline 301E)

Readily biodegradable.

Ratio BOD/ThBOD DBO5 33 % (IUCLID)

12.3 Bio accumulative potential

Partition coefficient: n-octano//water log Pow: 0,88 (experimental) (Lit.)

Bioaccumulation is not expected.

12.4 Mobility in soil

No information available

12.5 Results of PBT and vPvB assessment

This mixture does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

12.6 Other adverse effects

Additional ecological information

Discharge into the environment must be avoided.

SECTION 13. Disposal considerations

Waste treatment methods

Waste must be disposed of in accordance with the Directive on waste 2008/98/EC and with local and national regulations. Leave chemicals in original containers. No mixing with other waste. Treat uncleaned containers like the product itself.

SECTION 14. Transport information

Land transport (ADR/RID)

14.1 UN number	1120
14.2 Proper shipping name	BUTANOLS
14.3 Class	3
14.4 Packing group	III
14.5 Environmentally hazardous	--
14.6 Special precautions for user	yes
Tunnel restriction code	D/E

Air transport (IATA)

14.1 UN number	1120
14.2 Proper shipping name	BUTANOLS
14.3 Class	3
14.4 Packing group	III
14.5 Environmentally hazardous	--
14.6 Special precautions for user	no

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Sea transport (IMDG)

14.1 UN number	1120
14.2 Proper shipping name	BUTANOLS
14.3 Class	3
14.4 Packing group	III
14.5 Environmentally hazardous	--
14.6 Special precautions for user	yes
EMS	F-E S-D
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not relevant

SECTION 15. Regulatory information

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

Aquatic Class risk (WGK)	WGK1 (slightly hazardous for water).
Occupational restrictions	Take note of Directive 94/33/EC on the protection of young people at work and Directive 92/85/EEC on the safety and health at work of pregnant women
Substances of very high concern (SVHC)	This product does not contain substances of very high concern above the respective regulatory limit (> 0.1% (w/w) Regulation (EC) N° 1907/2006 (REACH), Article 57

15.2 Chemical Safety Assessment

No information available.

SECTION 16. Other information

Full text of H-Statements referred to under sections 2 and 3.

H226	Flammable liquid and vapors.
H302	Harmful if swallowed.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.

Training advice

Provide adequate information, instruction and training for operators.

Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at www.wikipedia.org.

The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.

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ANNEX: extract from the exposure scenario (ES n° 2) for workers and environment applicable to the professional use of n butanol, in accordance with regulation (EC) N° 1907/2006 (REACH).

1. Professional use (Reagent for analysis)

Sectors of end-use

SU 22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Chemical product category

PC 21 Laboratory chemicals

Process categories

PROC 15 Use as laboratory reagent

Environmental Release Categories

ERC 2 Formulation of preparations

ERC 6a Industrial use resulting in manufacture of another substance (use of intermediates)

2. Contributing scenarios: Operational conditions and risk management measures

2.1 Contributing scenario controlling environmental exposure for: ERC2, SpERC ESVOC 4

Amount used

Daily amount per site 133 t

Environment factors not influenced by risk management

Flow rate 18.000 m³/d

Dilution Factor (River) 10

Dilution Factor (Coastal Areas) 100

Other given operational conditions affecting environmental exposure

Emission or Release Factor: Air 0.05 %

Emission or Release Factor: Water 0.02 %

Emission or Release Factor: Soil 0 %

Conditions and measures related to municipal sewage treatment plant

Type of sewage treatment plant Municipal sewage treatment plant

Flow rate of sewage treatment 2.000 m³/d

plant effluent

Effectiveness (of a measure) 87.4 %

2.2 Contributing scenario controlling environmental exposure for: ERC6a: NOT APPLICABLE

2.3 Contributing scenario controlling worker exposure for: PROC15

Product characteristics

Concentration of the Substance in Mixture/Article Covers the percentage of the substance in the product up to

100 % unless stated differently.

Physical Form (at time of use) Medium volatile liquid

Process Temperature < 62 °C

Frequency and duration of use

Frequency of use 5 days/week

Other operational conditions affecting workers exposure

Outdoor / Indoor Indoor without local exhaust ventilation (LEV), Outdoor

Organisational measures to prevent /limit releases, dispersion and exposure

Covers daily exposures up to 8 hours

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3. Exposure estimation and reference to its source

Environment

CS	Use descriptor	Msafe	Compartment	RCR	Exposure Assessment Method
2.1	ERC2		Fresh water	0.247	ECETOC TRA
			Fresh water sediment	0.805	ECETOC TRA
			Marine water	0.566	ECETOC TRA
			Marine sediment	0.865	ECETOC TRA
			Soil	0.196	ECETOC TRA
			Sewage treatment plant	< 0.001	ECETOC TRA
2.2	ERC6a		Fresh water	0.156	ECETOC TRA
			Fresh water sediment	0.509	ECETOC TRA
			Marine water	0.175	ECETOC TRA
			Marine sediment	0.568	ECETOC TRA
			Soil	0.198	ECETOC TRA
			Sewage treatment plant	< 0.001	ECETOC TRA

Travailleurs

CS	Use descriptor	Exposure duration, route, effect	RCR	Exposure Assessment Method
2.3	PROC15	long term, inhalation, local	0.1	ECETOC TRA

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Please refer to the following documents: ECHA Guidance on information requirements and chemical safety assessment Chapter R.12: Use descriptor system; ECHA Guidance for downstream users; ECHA Guidance on information requirements and chemical safety assessment Part D: Exposure Scenario Building, Part E: Risk Characterization and Part G: Extending the SDS; VCI/Cefic REACH Practical Guides on Exposure Assessment and Communications in the Supply Chain; CEFIC Guidance Specific Environmental Release Categories (SPERCs).