SAFETY DATA SHEET

according to 1907/2006/EC, Article 3

Revision date: 30/03/2019

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

1.1 Product identifiers

Product name	n-Butanol
Product Number	PSI055
Brand	PureSynth research chemicals
CAS No.	71-36-3

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

Identified uses : PurTech standard for GC

1.3 Details of the supplier of the safety data sheet

Company **PureSynth Research Chemicals Pvt. Ltd.**

A-27, A.P.I.E, Hyderabad, Telangana-500037

1.4 Emergency telephone number

Worldwide Helpline No.: 1800-120-1234-34

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Flammable liquids (Category 3), H226 ,Acute toxicity, Oral (Category 4), H302
Skin irritation (Category 2), H315 ,Serious eye damage (Category 1), H318
Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

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

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Pictogram

Signal word Danger

Hazard statement(s)

H226	Flammable liquid and vapor.
H302	Harmful if swallowed.
H315	Harmful if swallowed.
H318	Causes serious eye damage
H335	Causes serious eye damage
H336	Causes serious eye damage

Precautionary statement(s)

P210	Causes serious eye damage
P233	Causes serious eye damage
P280	Wear protective gloves, protective clothing, face protection.
P301 + P312	IF SWALLOWED: Call a POISON CENTER/ doctor if you feel Unwell.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated Clothing. Rinse skin with water.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Supplemental Hazard Statements	None

2.3 **Other hazards**: This substance/mixture contains no components considered to be either persistent, bio accumulative and toxic (PBT), or very persistent and very bio accumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition / information on ingredients

3.1 Substances

Common names & Synonyms	**Mol. formula**	**CAS number**
Butyl alcohol n-Butanol	$C_4H_{10}O$	71-36-3
Component	**Classification**	**Concentration**
n-butanol	Flam. Liq. 3; Acute Tox. 4; Skin Irrit. 2; Eye Dam. 1; STOT SE 3; H226, H302, H315, H318, H336, H335 Concentration limits:>= 20 %: STOT SE 3, H335; >= 20 %: STOT SE 3, H336;	<= 100 %

SECTION 4: First aid measures

Description of first aid measures

General advice	Consult a physician. Show this safety data sheet to the doctor in attendance.
If inhaled	After inhalation: fresh air. Call in physician.
In case of skin contact	In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.
In case of eye contact	After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses
If swallowed	After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.
Most important symptoms and effects, both acute and delayed	The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11
Indication of any immediate medical attention and special treatment needed	No data available

SECTION 5: Fire fighting measures

Extinguishing media

Suitable extinguishing media	Carbon dioxide (CO2) Foam Dry powder

Special hazards arising from the substance or mixture	Carbon oxides Flash back possible over considerable distance. 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.
Advice for fire-fighters	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	In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion. 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

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, and consult an expert. For personal protection see section 8.
Environmental precautions	Do not let product enter drains. Risk of explosion
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. Chemizorb) Dispose of properly. Clean up affected area.
Reference to other sections	For disposal see section 13.

SECTION 7: Handling and storage

Precautions for safe handling	Avoid generation of vapors/aerosols. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance. For precautions see section 2.2
Conditions for safe storage, including any incompatibilities	Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Handle and store under inert gas. hygroscopic
Specific end use(s)	Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls / Personal protection

Control parameters	Components with workplace control parameters
Exposure controls	
Appropriate engineering controls	Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
Personal protective equipment:	
Eye / face protection	Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles.
Skin protection	Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves

	after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it. If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.
Body Protection	Flame retardant antistatic protective clothing
Respiratory protection	Recommended Filter type: Filter A (acc. to DIN 3181) for vapours of organic compounds The entrepreneur 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.
Control of environmental exposure	Do not let product enter drains. Risk of explosion

SECTION 9: Physical and chemical properties

Appearance	Form: Liquid, clear Colour: Colourless
Odour	ethanolic
pH - Value	7 at 70 g/l at 20 °C
Density	No data available
Boiling Point	116 - 118 °C
Melting Point	-90 °C
Solubility in water	66 g/l at 20 °C - OECD Test Guideline 105
Flash point	35 °C - Pensky-Martens closed cup - ISO 2719
Vapour pressure	< 10 hPa at 20 °C
Auto -ignition temperature	No data available
Vapour density	2,56 at 20 °C - (Air = 1.0)
Flammability (solid, gas)	No data available
Evaporation rate	No data available
Partition coefficient: n- octanol / water	Log Pow: 1 at 25 °C - Bioaccumulation is not expected.
Viscosity	Viscosity, dynamic: 2,95 mPa.s at 20 °C
Explosive properties	No data available
Upper / lower flammability or explosive limits	Upper explosion limit: 11,2 %(V) Lower explosion limit: 1,4 %(V)
Oxidizing properties	No data available

Other safety information:

Surface tension - 69,9 mN/m at 1g/l at 20 °C - OECD Test Guideline 115

Relative vapour density - 2,56 at 20 °C - (Air = 1.0)

SECTION 10: Stability and reactivity

Reactivity	Vapour/air-mixtures are explosive at intense warming
Chemical stability	The product is chemically stable under standard ambient conditions (room temperature)
Possibility of hazardous reactions	Risk of ignition or formation of inflammable gases or vapours with strong oxidising agents ,chromium(VI) oxide Exothermic reaction with: Alkali metals Alkaline earth metals Aluminium strong reducing agents ,Acid chlorides
Condition to avoid	Exposure to moisture , Heating
Incompatible materials	rubber, various plastics
Hazardous decomposition products	In the event of fire: see section 5

SECTION 11: Toxicological information

Acute toxicity	LD50 Oral - Rat - 790 mg/kg Remarks: Liver: Fatty liver degeneration. Kidney, Ureter, Bladder: Other changes. Blood: Other changes.RTECS) Inhalation: No data availableLD50 Dermal - Rabbit - male - 3.430 mg/kg (OECD Test Guideline 402).
Skin corrosion/irritation	Skin - Rabbit Result: Skin irritation - 2 h Remarks: (ECHA) (Regulation (EC) No 1272/2008, Annex VI)
Serious eye damage/eye irritation	Eyes – Rabbit Result: Irreversible effects on the eye (OECD Test Guideline 405) (Regulation (EC) No 1272/2008, Annex VI)
Respiratory or skin sensitization	No data available
Germ cell mutagenicity	Test Type: Mutagenicity (mammal cell test): micronucleus. Test system: Chinese hamster lung cells Metabolic activation: without metabolic activation Result: negative ,Remarks: (ECHA) Test Type: In vitro mammalian cell gene mutation test Test system: Chinese hamster lung cells Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 476 Result: negative. Test Type: Micronucleus test Application Route: Oral Method: OECD Test Guideline 474 Result: negative
Carcinogenicity	No data available
Reproductive toxicity	No data available
Specific target organ toxicity - single exposure	May cause respiratory irritation. May cause drowsiness or dizziness
Specific target organ toxicity - repeated exposure Aspiration hazard	No data available
Additional Information	RTECS: EO1400000 drying, cracking of the skin, Skin irritation To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated

SECTION 12: Ecological information

Toxicity

Toxicity to fish	static test LC50 - Pimephales promelas (fathead minnow) - 1.376 mg/l - 96 h ,(OECD Test Guideline 203)

Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - 1.328 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	static test ErC50 - Pseudokirchneriella subcapitata (green algae) - 225 mg/l - 96 h,(OECD Test Guideline 201)
Toxicity to bacteria	static test EC50 - Pseudomonas putida - 4.390 mg/l - 17 h (DIN 38421 TEIL 8)
Persistence and degradability	
Biodegradability	Aerobic - Exposure time 20 d, Result: 92 % - Readily biodegradable. Remarks: (ECHA)
Ratio BOD/ThBOD	33 % Remarks: (IUCLID)
Bio accumulative potential	Oncorhynchus mykiss (rainbow trout) - 24 h - 921 mg/l(n-butanol) Bio concentration factor (BCF): 0,38
Mobility in soil	No data available
Results of PBT and vPvB assessment	This substance/mixture contains no components considered to be either persistent, bio accumulative and toxic (PBT), or very persistent and very bio accumulative (vPvB) at levels of 0.1% or higher.
Other adverse effects	No data available

SECTION 13: Disposal considerations

Waste treatment methods Products	Offer surplus and non-recyclable solutions to a licensed disposal company. Waste material must be disposed of in accordance with the Directive on waste 2008/98/EC as well as other national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleansed containers like the product itself.
Contaminated packaging	Dispose of as unused product.

SECTION 14: Transport information

	UN no.	UN proper shipping name	Hazard Class(es)	Packaging group	Marine Pollutant
ADR / RID	1120	BUTANOLS	3	III	No
IMDG	1120	BUTANOLS	3	III	No
IATA	1120	Butanols	3	III	No

SECTION 15: Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture
This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

National legislation
Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous Substances. : FLAMMABLE LIQUIDS

Other regulations
Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or Stricter national regulations where applicable.
Take note of Dir 94/33/EC on the protection of young people at work.

Chemical safety assessment
For this product a chemical safety assessment was not carried out.

SECTION 16: Other information

The information in this SDS is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. The user must be determined suitability of this information for his application.