



# SAFETY DATA SHEET

N-BUTANOL

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Compilation date: 03/06/2015

Revision No: 1

## Section 1: Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

**Product name:** N-BUTANOL

**CAS number:** 71-36-3

**EINECS number:** 200-751-6

**Index number:** 603-004-00-6

**Product code:** GWN9004

**Synonyms:** BUTYL ALCOHOL

1-BUTANOL

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

**Use of substance / mixture:** Manufacture of substances. Laboratory chemicals.

### 1.3. Details of the supplier of the safety data sheet

**Company name:** Atom Scientific Ltd

Unit 2B East Tame Business Park

Rexcine Way

Hyde

Cheshire

SK14 4GX

United Kingdom

**Tel:** +44 161 366 5123

**Fax:** +44 170 433 7167

**Email:** technical@atomscientific.com

### 1.4. Emergency telephone number

**Emergency tel:** +44 161 366 5123

(office hours only)

## Section 2: Hazards identification

### 2.1. Classification of the substance or mixture

**Classification under CLP:** Flam. Liq. 3: H226; Acute Tox. 4: H302; Skin Irrit. 2: H315; Eye Dam. 1: H318; STOT SE 3: H335; STOT SE 3: H336

**Most important adverse effects:** Flammable liquid and vapour. Harmful if swallowed. Causes skin irritation. Causes serious eye damage. May cause respiratory irritation. May cause drowsiness or dizziness.

[cont...]

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## 2.2. Label elements

### Label elements under CLP:

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

**Signal words:** Danger

**Hazard pictograms:** GHS02: Flame  
GHS05: Corrosion  
GHS07: Exclamation mark



**Precautionary statements:** P261: Avoid breathing.  
P280: Wear.  
P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

## 2.3. Other hazards

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

**PBT:** This product is not identified as a PBT/vPvB substance.

## Section 3: Composition/information on ingredients

### 3.1. Substances

**Chemical identity:** N-BUTANOL  
**CAS number:** 71-36-3  
**EINECS number:** 200-751-6  
**Contains:** Molecular Formula: C<sub>4</sub>H<sub>10</sub>O  
Molecular Weight: 74.12 g/mol.

## Section 4: First aid measures

### 4.1. Description of first aid measures

**Skin contact:** Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention if any discomfort continues. Consult a doctor.  
**Eye contact:** Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyes wide apart. Get medical attention immediately. Continue to rinse.

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**Ingestion:** Do not induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a doctor.

**Inhalation:** If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a doctor.

## 4.2. Most important symptoms and effects, both acute and delayed

**Skin contact:** May be harmful if absorbed through the skin. There may be irritation and redness at the site of contact.

**Eye contact:** Causes serious eye irritation. There may be pain and redness. The eyes may water profusely. The vision may become blurred. May cause permanent damage. May cause permanent blindness.

**Ingestion:** May be harmful if swallowed. There may be soreness and redness of the mouth and throat. There may be difficulty swallowing. There may be vomiting. Nausea and stomach pain may occur.

**Inhalation:** May be harmful if inhaled. May cause respiratory tract irritation. There may be irritation of the throat with a feeling of tightness in the chest. Exposure may cause coughing or wheezing. May cause drowsiness and dizziness.

## 4.3. Indication of any immediate medical attention and special treatment needed

**Immediate / special treatment:** Show this safety data sheet to the doctor in attendance. Eye bathing equipment should be available on the premises.

## Section 5: Fire-fighting measures

### 5.1. Extinguishing media

**Extinguishing media:** Water spray. Alcohol resistant foam. Dry chemical powder. Carbon dioxide.

### 5.2. Special hazards arising from the substance or mixture

**Exposure hazards:** Carbon oxides. Flash back possible over considerable distance

### 5.3. Advice for fire-fighters

**Advice for fire-fighters:** Wear self-contained breathing apparatus. Wear protective clothing to prevent contact with skin and eyes. In case of fire, evacuate area. Fight fire remotely due to the risk of explosion. Use water spray to cool unopened containers.

## Section 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

**Personal precautions:** Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Remove all sources of ignition. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. For personal protection see section 8.

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## 6.2. Environmental precautions

**Environmental precautions:** Spillages or uncontrolled discharges into watercourses must be IMMEDIATELY alerted to the Environmental Agency or other appropriate regulatory body. Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into environment must be avoided.

## 6.3. Methods and material for containment and cleaning up

**Clean-up procedures:** Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations.

## 6.4. Reference to other sections

**Reference to other sections:** For personal protection, see section 8. For waste disposal, see section 13.

## Section 7: Handling and storage

### 7.1. Precautions for safe handling

**Handling requirements:** Avoid direct contact with the substance. Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge. For precautions see section 2.2.

### 7.2. Conditions for safe storage, including any incompatibilities

**Storage conditions:** Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Hygroscopic - Handle and store under inert gas. Storage class (TRGS 510): Flammable liquids.

### 7.3. Specific end use(s)

**Specific end use(s):** No other specific uses stipulated other than the uses mentioned in section 1.2.

## Section 8: Exposure controls/personal protection

### 8.1. Control parameters

#### Workplace exposure limits:

#### Respirable dust

State	8 hour TWA	15 min. STEL	8 hour TWA	15 min. STEL
UK	-	50 ppm (154 mg/m <sup>3</sup> )	-	-

### 8.1. DNEL/PNEC Values

**DNEL / PNEC** No data available.

### 8.2. Exposure controls

**Engineering measures:** Ensure there is sufficient ventilation of the area. Handle in accordance with good industrial hygiene and safety practice. Wash hands before and after breaks and at the end of workday.

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**Respiratory protection:** Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Hand 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 application laws and good laboratory practises. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it. For full contact use Nitrile rubber gloves with a minimum thickness layer of 0.4mm, and a break through time of 480 mins. For splash contact use Nitrile rubber gloves with a minimum thickness layer of 0.2mm, and a break through time of 72 mins. If used in solution, or mixed with substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves.

**Eye protection:** Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

**Skin protection:** Complete suit protecting against chemicals. Flame retardant antistatic protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Environmental:** Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

## Section 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

**State:** Liquid

**Colour:** Colourless

**Solubility in water:** Soluble

**Boiling point/range °C:** 116-118

**Flammability limits %: lower:** 1.4

**Flash point °C:** 35

**Relative density:** 0.81

**Melting point/range °C:** -90

**upper:** 11.2

**Vapour pressure:** 5 hPa at 20C

### 9.2. Other information

**Other information:** Relative vapour density - 2.56 (Air = 1.0)

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## Section 10: Stability and reactivity

### 10.1. Reactivity

**Reactivity:** Stable under recommended transport or storage conditions.

### 10.2. Chemical stability

**Chemical stability:** Stable under recommended storage conditions.

### 10.3. Possibility of hazardous reactions

**Hazardous reactions:** Hazardous reactions will not occur under normal transport or storage conditions.  
Decomposition may occur on exposure to conditions or materials listed below.

### 10.4. Conditions to avoid

**Conditions to avoid:** Exposure to moisture. Heat, flames and sparks

### 10.5. Incompatible materials

**Materials to avoid:** Oxidising agents. Alkali metals. Bases. Strong acids. Halogens.

### 10.6. Hazardous decomposition products

**Haz. decomp. products:** In combustion emits toxic fumes. In the event of fire: see section 5

## Section 11: Toxicological information

### 11.1. Information on toxicological effects

#### Toxicity values:

Route	Species	Test	Value	Units
ORAL	RAT	LD50	790	mg/kg
INHALATION	RAT	4H LC50	8,000	ppm
DERMAL	RABBIT	LD50	3,400	mg/kg

#### Relevant hazards for substance:

Hazard	Route	Basis
Acute toxicity (ac. tox. 4)	ING	Based on test data
Skin corrosion/irritation	DRM	Based on test data
Serious eye damage/irritation	OPT	Based on test data
STOT-single exposure	INH	Based on test data

### Symptoms / routes of exposure

**Skin contact:** May be harmful if absorbed through the skin. There may be irritation and redness at the site of contact.

**Eye contact:** Causes serious eye irritation There may be pain and redness. The eyes may water profusely. The vision may become blurred. May cause permanent damage. May cause permanent blindness.

**Ingestion:** May be harmful if swallowed. There may be soreness and redness of the mouth and

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throat. There may be difficulty swallowing. There may be vomiting. Nausea and stomach pain may occur.

**Inhalation:** May be harmful if inhaled. May cause respiratory tract irritation. There may be irritation of the throat with a feeling of tightness in the chest. Exposure may cause coughing or wheezing. May cause drowsiness and dizziness.

**Other 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

### 12.1. Toxicity

#### Ecotoxicity values:

Species	Test	Value	Units
Pimephales promelas (Fathead minnow)	96H LC50	1,840	mg/l
Daphnia magna (Water flea)	48H EC50	1,983	mg/l

### 12.2. Persistence and degradability

**Persistence and degradability:** No data available.

### 12.3. Bioaccumulative potential

**Bioaccumulative potential:** Bioaccumulation - Oncorhynchus mykiss (rainbow trout) - 24h - 921 mg/l.

Bioconcentration factor (BCF): 0.38.

### 12.4. Mobility in soil

**Mobility:** Soluble in water.

### 12.5. Results of PBT and vPvB assessment

**PBT identification:** This product is not identified as a PBT/vPvB substance.

### 12.6. Other adverse effects

**Other adverse effects:** No data available.

## Section 13: Disposal considerations

### 13.1. Waste treatment methods

**Disposal operations:** Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

**Disposal of packaging:** Dispose of as unused product.

**NB:** The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

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## Section 14: Transport information

### 14.1. UN number

UN number: UN1120

### 14.2. UN proper shipping name

Shipping name: BUTANOLS

### 14.3. Transport hazard class(es)

Transport class: 3

### 14.4. Packing group

Packing group: III

### 14.5. Environmental hazards

Environmentally hazardous: No

Marine pollutant: No

### 14.6. Special precautions for user

Tunnel code: D/E

Transport category: 3

## Section 15: Regulatory information

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

**Specific regulations:** This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

### 15.2. Chemical Safety Assessment

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

## Section 16: Other information

### Other information

**Other information:** This safety data sheet is prepared in accordance with Commission Regulation (EU) No 453/2010.

\* indicates text in the SDS which has changed since the last revision.

**Phrases used in s.2 and 3:** H226: Flammable liquid and vapour.

H302: Harmful if swallowed.

H315: Causes skin irritation.

H318: Causes serious eye damage.

H335: May cause respiratory irritation.

H336: May cause drowsiness or dizziness.

**Legal disclaimer:** The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. This company shall not be held liable for any damage resulting from handling or from contact with the above product.