



SAFETY DATA SHEET 2-METHYLPROPAN-2-OL

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

1.1. Product identifier

Product name	2-METHYLPROPAN-2-OL
Product number	465
Synonyms; trade names	TERTIARY BUTYL ALCOHOL, TERTIARY BUTANOL
REACH registration number	01-2119444321-51-0000
CAS number	75-65-0
EU index number	603-005-00-1
EC number	200-889-7

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

Identified uses	Chemical Intermediate Cleaning agent. Water Treatment Industrial Solvent
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1.3. Details of the supplier of the safety data sheet

Supplier	Univar Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 sds@univar.com
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1.4. Emergency telephone number

Emergency telephone	SGS - +32 (0)3 575 55 55 (24h)
Sds No.	465

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

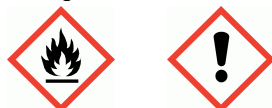
Classification (EC 1272/2008)

Physical hazards	Flam. Liq. 2 - H225
Health hazards	Acute Tox. 4 - H332 Eye Irrit. 2 - H319 STOT SE 3 - H335
Environmental hazards	Not Classified

2.2. Label elements

EC number	200-889-7
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Pictogram



2-METHYLPROPAN-2-OL

Signal word	Danger
Hazard statements	H225 Highly flammable liquid and vapour. H319 Causes serious eye irritation. H332 Harmful if inhaled. H335 May cause respiratory irritation.
Precautionary statements	P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P312 Call a POISON CENTRE/doctor if you feel unwell. P501 Dispose of contents/ container in accordance with national regulations.

2.3. Other hazards

This substance is not classified as PBT or vPvB according to current EU criteria.

SECTION 3: Composition/information on ingredients

3.1. Substances

Product name	2-METHYLPROPAN-2-OL
REACH registration number	01-2119444321-51-0000
EU index number	603-005-00-1
CAS number	75-65-0
EC number	200-889-7
Composition comments	The data shown are in accordance with the latest EC Directives.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation	Move affected person to fresh air at once. Get medical attention if any discomfort continues.
Ingestion	Rinse mouth thoroughly with water. Give plenty of water to drink. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Get medical attention immediately.
Skin contact	Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention if any discomfort continues.
Eye contact	Rinse immediately with plenty of water. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes. Get medical attention if symptoms are severe or persist after washing.

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

Inhalation	May cause respiratory irritation. Harmful if inhaled. May cause nausea, headache, dizziness and intoxication.
Ingestion	Entry into the lungs following ingestion or vomiting may cause chemical pneumonitis.
Skin contact	May be slightly irritating to skin.
Eye contact	Causes serious eye irritation.

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

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Notes for the doctor No specific recommendations. If in doubt, get medical attention promptly.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog.

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

Specific hazards Vapours are heavier than air and may spread near ground and travel a considerable distance to a source of ignition and flash back. Vapours may form explosive mixtures with air. Containers can burst violently or explode when heated, due to excessive pressure build-up.

Hazardous combustion products Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours. Hydrocarbons.

5.3. Advice for firefighters

Protective actions during firefighting Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk.

Special protective equipment for firefighters Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Wear protective clothing as described in Section 8 of this safety data sheet. Avoid inhalation of spray mist and contact with skin and eyes. No smoking, sparks, flames or other sources of ignition near spillage. Provide adequate ventilation.

6.2. Environmental precautions

Environmental precautions Spillages or uncontrolled discharges into watercourses must be reported immediately to the Environmental Agency or other appropriate regulatory body. Do not discharge into drains or watercourses or onto the ground.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Absorb spillage with inert, damp, non-combustible material. Collect and place in suitable waste disposal containers and seal securely. For waste disposal, see Section 13.

6.4. Reference to other sections

Reference to other sections Wear protective clothing as described in Section 8 of this safety data sheet.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions Eliminate all sources of ignition. Provide adequate ventilation. Mechanical ventilation or local exhaust ventilation may be required. Avoid inhalation of vapours/spray and contact with skin and eyes. Use explosion-proof electrical equipment. Use only non-sparking tools.

Advice on general occupational hygiene Provide eyewash station and safety shower. Do not eat, drink or smoke when using this product. Wash after use and before eating, smoking and using the toilet. Remove contaminated clothing and protective equipment before entering eating areas. Take off immediately all contaminated clothing and wash it before reuse.

7.2. Conditions for safe storage, including any incompatibilities

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Storage precautions

Store in tightly-closed, original container in a dry, cool and well-ventilated place. Keep away from heat, sparks and open flame. Suitable container materials: Mild steel. Stainless steel. Take precautionary measures against static discharges. Earth container and transfer equipment to eliminate sparks from static electricity. Avoid contact with the following materials: Oxidising agents. Acids. Alkali metals.

Storage class

Flammable liquid storage.

7.3. Specific end use(s)

Specific end use(s)

The identified uses for this product are detailed in Section 1.2.

SECTION 8: Exposure Controls/personal protection

8.1. Control parameters

Occupational exposure limits

Long-term exposure limit (8-hour TWA): WEL 100 ppm 308 mg/m³

Short-term exposure limit (15-minute): WEL 150 ppm 462 mg/m³

WEL = Workplace Exposure Limit

Ingredient comments

WEL = Workplace Exposure Limits

DNEL

Industry - Inhalation; Short term systemic effects: 240 mg/m³

Industry - Inhalation; Long term systemic effects: 49 mg/m³

Consumer - Inhalation; Short term systemic effects: 240 mg/m³

Consumer - Inhalation; Long term systemic effects: 9.7 mg/m³

Industry - Dermal; Long term systemic effects: 139 mg/kg

Consumer - Oral; Long term systemic effects: 6.7 mg/kg

Consumer - Dermal; Long term systemic effects: 83 mg/kg

PNEC

- Fresh water; 6.64 mg/l

- Marine water; 0.664 mg/l

- Sediment; 5.8 mg/l

Intermittent release; 9.33 mg/l

Soil; 1 mg/kg

STP; 690 mg/l

8.2. Exposure controls

Protective equipment



Appropriate engineering controls

Provide adequate ventilation. Use explosion-proof electrical equipment. Provide eyewash station and safety shower. Observe any occupational exposure limits for the product or ingredients.

Eye/face protection

Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. Unless the assessment indicates a higher degree of protection is required, the following protection should be worn: Chemical splash goggles. Personal protective equipment for eye and face protection should comply with European Standard EN166.

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Hand protection	Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible. The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material. It is recommended that gloves are made of the following material: Nitrile rubber. To protect hands from chemicals, gloves should comply with European Standard EN374.
Other skin and body protection	Wear suitable protective clothing as protection against splashing or contamination.
Hygiene measures	Wash after use and before eating, smoking and using the toilet. When using do not eat, drink or smoke. Remove contaminated clothing and protective equipment before entering eating areas. Take off immediately all contaminated clothing and wash it before reuse.
Respiratory protection	If ventilation is inadequate, suitable respiratory protection must be worn. Organic vapour filter. Ensure all respiratory protective equipment is suitable for its intended use and is 'CE'-marked.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Appearance	Liquid.
Odour	Characteristic.
Odour threshold	No information available.
pH	No information available.
Melting point	25°C
Initial boiling point and range	82.0 - 83.0°C @ 1013 hPa
Flash point	<21°C
Evaporation rate	No information available.
Evaporation factor	No information available.
Flammability (solid, gas)	No information available.
Upper/lower flammability or explosive limits	Lower flammable/explosive limit: 1.8 Upper flammable/explosive limit: 8
Other flammability	No information available.
Vapour pressure	4.07 kPa @ °C
Vapour density	No information available.
Relative density	0.775 @ 30°C
Bulk density	No information available.
Solubility(ies)	Miscible with water.
Partition coefficient	log Pow: 0.3
Auto-ignition temperature	490°C
Decomposition Temperature	No information available.
Viscosity	3.3 mPa s @ 30°C
Explosive properties	No information available.

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Explosive under the influence of a flame No information available.

Oxidising properties No information available.

9.2. Other information

Molecular weight 74.12

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity Vapours may form explosive mixtures with air.

10.2. Chemical stability

Stability Stable at normal ambient temperatures and when used as recommended.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions Will not polymerise.

10.4. Conditions to avoid

Conditions to avoid Avoid heat, flames and other sources of ignition. Static electricity and formation of sparks must be prevented.

10.5. Incompatible materials

Materials to avoid Strong oxidising agents. Strong acids. Alkali metals.

10.6. Hazardous decomposition products

Hazardous decomposition products Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours. Hydrocarbons.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 3,100.0

Species Rat

Acute toxicity - dermal

Acute toxicity dermal (LD₅₀ mg/kg) 2,000.0

Species Rat

Acute toxicity - inhalation

Acute toxicity inhalation (LC₅₀ vapours mg/l) 31.0

Species Rat

ATE inhalation (vapours mg/l) 31.0

Skin corrosion/irritation

Skin corrosion/irritation Slightly irritating.

Serious eye damage/irritation

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Serious eye damage/irritation Moderately irritating.

Skin sensitisation

Skin sensitisation - Guinea pig: Not sensitising.

Germ cell mutagenicity

Genotoxicity - in vitro Gene mutation: Negative.

Genotoxicity - in vivo Based on available data the classification criteria are not met.

Carcinogenicity

Carcinogenicity Does not contain any substances known to be carcinogenic.

Reproductive toxicity

Reproductive toxicity - fertility Based on available data the classification criteria are not met.

Specific target organ toxicity - single exposure

STOT - single exposure No information available.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure No information available.

Inhalation Harmful by inhalation. May cause respiratory irritation.

Ingestion Entry into the lungs following ingestion or vomiting may cause chemical pneumonitis.

Skin contact Slightly irritating.

Eye contact May cause severe eye irritation.

SECTION 12: Ecological Information

Ecotoxicity The product components are not classified as environmentally hazardous. However, large or frequent spills may have hazardous effects on the environment.

12.1. Toxicity

Acute aquatic toxicity

Acute toxicity - fish LC₀, 96 hours: > 856 mg/l, Brachydanio rerio (Zebra Fish)

Acute toxicity - aquatic invertebrates EC₅₀, 48 hours: > 933 mg/l, Daphnia magna

Acute toxicity - aquatic plants EC₅₀, 72 hours: > 1000 mg/l, Scenedesmus subspicatus

12.2. Persistence and degradability

Persistence and degradability The product is readily biodegradable.

Biodegradation Water - Degradation (%) 99:

12.3. Bioaccumulative potential

Bioaccumulative potential The product is not bioaccumulating.

Partition coefficient log Pow: 0.3

12.4. Mobility in soil

Mobility The product is soluble in water.

12.5. Results of PBT and vPvB assessment

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Results of PBT and vPvB assessment This substance is not classified as PBT or vPvB according to current EU criteria.

12.6. Other adverse effects

Other adverse effects Not known.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

General information Waste is classified as hazardous waste. Highly flammable liquid and vapour. Do not pressurise, cut, weld, drill, grind or otherwise expose containers to heat or sources of ignition.

Disposal methods Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

SECTION 14: Transport information

14.1. UN number

UN No. (ADR/RID)	1120
UN No. (IMDG)	1120
UN No. (ICAO)	1120
UN No. (ADN)	1120

14.2. UN proper shipping name

Proper shipping name (ADR/RID)	BUTANOLS
Proper shipping name (IMDG)	BUTANOLS
Proper shipping name (ICAO)	BUTANOLS
Proper shipping name (ADN)	BUTANOLS

14.3. Transport hazard class(es)

ADR/RID class	3
ADR/RID classification code	F1
ADR/RID label	3
IMDG class	3
ICAO class/division	3
ADN class	3

Transport labels



14.4. Packing group

ADR/RID packing group	II
IMDG packing group	II
ADN packing group	II
ICAO packing group	II

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14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant

No.

14.6. Special precautions for user

EmS F-E, S-D

ADR transport category 2

Emergency Action Code •2YE

Hazard Identification Number 33
(ADR/RID)

Tunnel restriction code (D/E)

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Transport in bulk according to Not applicable.

Annex II of MARPOL 73/78

and the IBC Code

SECTION 15: Regulatory information

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

National regulations EH40/2005 Workplace exposure limits.

EU legislation Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended).
Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended).
Commission Regulation (EU) No 2015/830 of 28 May 2015.
This product may impact SEVESO storage regulations.

15.2. Chemical safety assessment

A chemical safety assessment has been carried out.

Inventories

EU - EINECS/ELINCS

All the ingredients are listed or exempt.

Canada - DSL/NDL

All the ingredients are listed or exempt.
DSL

US - TSCA

All the ingredients are listed or exempt.

Australia - AICS

All the ingredients are listed or exempt.

Japan - MITI

All the ingredients are listed or exempt.

Korea - KECI

All the ingredients are listed or exempt.

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China - IECSC

All the ingredients are listed or exempt.

Philippines – PICCS

All the ingredients are listed or exempt.

New Zealand - NZIOC

All the ingredients are listed or exempt.

SECTION 16: Other information

Abbreviations and acronyms used in the safety data sheet

ATE: Acute Toxicity Estimate.
 ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.
 ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways.
 CAS: Chemical Abstracts Service.
 DNEL: Derived No Effect Level.
 IATA: International Air Transport Association.
 IMDG: International Maritime Dangerous Goods.
 Kow: Octanol-water partition coefficient.
 LC₅₀: Lethal Concentration to 50 % of a test population.
 LD₅₀: Lethal Dose to 50% of a test population (Median Lethal Dose).
 PBT: Persistent, Bioaccumulative and Toxic substance.
 PNEC: Predicted No Effect Concentration.
 REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006.
 RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail.
 vPvB: Very Persistent and Very Bioaccumulative.
 IARC: International Agency for Research on Cancer.
 MARPOL 73/78: International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978.
 cATpE: Converted Acute Toxicity Point Estimate.
 BCF: Bioconcentration Factor.
 BOD: Biochemical Oxygen Demand.
 EC₅₀: 50% of maximal Effective Concentration.
 LOAEC: Lowest Observed Adverse Effect Concentration.
 LOAEL: Lowest Observed Adverse Effect Level.
 NOAEC: No Observed Adverse Effect Concentration.
 NOAEL: No Observed Adverse Effect Level.
 NOEC: No Observed Effect Concentration.
 LOEC: Lowest Observed Effect Concentration.
 DMEL: Derived Minimal Effect Level.
 EL50: Exposure Limit 50
 hPa: Hectopascal
 LL50: Lethal Loading fifty
 OECD: Organisation for Economic Co-operation and Development
 POW: Octanol-water partition coefficient
 SCBA: self-contained breathing apparatus
 STP: Sewage Treatment Plant
 VOC: Volatile Organic Compounds

Classification abbreviations and acronyms

Acute Tox. = Acute toxicity
 Aquatic Acute = Hazardous to the aquatic environment (acute)
 Aquatic Chronic = Hazardous to the aquatic environment (chronic)

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Key literature references and sources for data	Supplier's information.
Revision comments	NOTE: Lines within the margin indicate significant changes from the previous revision.
Revision date	17/05/2018
Version number	2.000
Supersedes date	24/11/2011
SDS number	465
SDS status	Approved.
Hazard statements in full	H225 Highly flammable liquid and vapour. H319 Causes serious eye irritation. H332 Harmful if inhaled. H335 May cause respiratory irritation.
Signature	J Spenceley



Exposure scenario

Manufacture and use as an Intermediate

Identification

Product name	t-Butyl Alcohol
REACH registration number	01-2119444321-51-XXXX
CAS number	75-65-0
EC number	200-889-7
Supplier	Univar Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 sds@univar.com

1. Title of exposure scenario

Main title	Manufacture and use as an Intermediate
Process scope	Manufacture of the substance or use as a process chemical or extraction agent within closed or contained systems. Includes incidental exposures during recycling/recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container). Use of substance as an intermediate (not related to Strictly Controlled Conditions). Includes recycling/recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).
Main sector	SU3 Industrial uses
Sector of use	SU8 Manufacture of bulk, large-scale chemicals (including petroleum products) SU9 Manufacture of fine chemicals

Environment

Environmental release category	ERC1 Manufacture of substances. ERC6a Industrial use resulting in manufacture of another substance (use of intermediates).
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Worker

Process category	PROC1 Use in closed process, no likelihood of exposure. PROC2 Use in closed, continuous process with occasional controlled exposure PROC3 Use in closed batch process (synthesis or formulation). PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises. PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. PROC15 Use as laboratory reagent.
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Manufacture and use as an Intermediate

2. Conditions of use affecting exposure (Industrial - Environment 1)

Control of environmental exposure

Environmental release category ERC1 Manufacture of substances.

Product characteristics

Physical state Liquid

Vapour pressure Vapour pressure 0.5 - 10 kPa at STP.
Inherently biodegradable, fulfilling criteria.

Amounts used

Annual site tonnage: 550,000 tonnes

Frequency and duration of use

Continuous release.
Emission days: 365 days/year

Environmental factors not influenced by risk management measures

Dilution Local freshwater dilution factor: 10
Local marine water dilution factor: 100
Receiving surface water flow: 18000 m³/day

Risk management measures

Good practice Store all VOC-containing wastes in closed, secure containers (e.g. bulk tanks, intermediate bulk containers, drums). Site should have a spill plan to ensure that adequate safeguards are in place to minimise the impact of episodic releases. A leak prevention plan is needed to prevent low level continual releases. A storm water management plan is needed to ensure that the wastewater treatment plant is not overloaded with uncontaminated water. Minimise water use and curtail all unnecessary waste water generation.

STP type Onsite STP.

STP details Assumed onsite sewage treatment plant flow: 2000 m³/day

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air Treat air emission to provide a typical removal efficiency of 99%. Wet scrubber for elimination of volatile components from waste gases.

Water Provide onsite wastewater removal efficiency of 92-98%.

Soil Soil emission controls are not applicable as there is no direct release to soil.
Risk from environmental exposure is driven by marine sediment.

Conditions and measures related to external treatment of waste for disposal

Waste treatment Anaerobic biological treatment Sedimentation of solids by air flotation

Disposal method This material and its container must be disposed of as hazardous waste. Contain and dispose of waste according to local regulations.
Domestic sewage treatment is not assumed.

2. Conditions of use affecting exposure (Industrial - Environment 2)

Control of environmental exposure

Manufacture and use as an Intermediate

Environmental release category ERC6a Industrial use resulting in manufacture of another substance (use of intermediates).

Product characteristics

Physical state Liquid

Vapour pressure Vapour pressure 0.5 - 10 kPa at STP.
Inherently biodegradable, fulfilling criteria.

Amounts used

Annual site tonnage: 400,000 tonnes

Frequency and duration of use

Continuous release.
Emission days: 300 days/year

Environmental factors not influenced by risk management measures

Dilution Local freshwater dilution factor: 10
Local marine water dilution factor: 100
Receiving surface water flow: 18000 m³/day

Risk management measures

Good practice Store all VOC-containing wastes in closed, secure containers (e.g. bulk tanks, intermediate bulk containers, drums). Site should have a spill plan to ensure that adequate safeguards are in place to minimise the impact of episodic releases. A leak prevention plan is needed to prevent low level continual releases. A storm water management plan is needed to ensure that the wastewater treatment plant is not overloaded with uncontaminated water. Minimise water use and curtail all unnecessary waste water generation.

STP type Onsite STP.

STP details Assumed onsite sewage treatment plant flow: 2000 m³/day

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air No air emission controls required; required removal efficiency is 0%.

Water Provide onsite wastewater removal efficiency of 80%.

Soil Not applicable - no direct release to soil.
Risk from environmental exposure is driven by marine sediment.

Conditions and measures related to external treatment of waste for disposal

Waste treatment Aerobic biological treatment Sedimentation of solids by air flotation

Disposal method This material and its container must be disposed of as hazardous waste. Contain and dispose of waste according to local regulations.

Domestic sewage treatment is not assumed.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state Liquid

Vapour pressure Vapour pressure 0.5 - 10 kPa at STP.

Concentration details Covers concentrations up to 100 %.

Manufacture and use as an Intermediate

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Temperature Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Ensure material transfers are under containment or extract ventilation. Provide extract ventilation to points where emissions occur. Drain or remove substance from equipment prior to break-in or maintenance.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Assumes a good basic standard of occupational hygiene is implemented.

3. Exposure estimation (Environment 1)

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. The use is assessed to be safe.

3. Exposure estimation (Health 1)

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. The use is assessed to be safe.



Exposure scenario

Formulation and packing of mixtures

Identification

Product name	t-Butyl Alcohol
REACH registration number	01-2119444321-51-XXXX
CAS number	75-65-0
EC number	200-889-7
Supplier	Univar Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 sds@univar.com

1. Title of exposure scenario

Main title	Formulation and packing of mixtures
Process scope	Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tableting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.
Main sector	SU3 Industrial uses
Sector of use	SU10 Formulation [mixing] of preparations and/or re-packaging
<u>Environment</u>	
Environmental release category	ERC2 Formulation of preparations.
<u>Worker</u>	

Formulation and packing of mixtures

Process category

PROC1 Use in closed process, no likelihood of exposure.
 PROC2 Use in closed, continuous process with occasional controlled exposure
 PROC3 Use in closed batch process (synthesis or formulation).
 PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises.
 PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact).
 PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.
 PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.
 PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing).
 PROC14 Production of preparations or articles by tableting, compression, extrusion, pelletisation.
 PROC15 Use as laboratory reagent.

2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state Liquid
Vapour pressure Vapour pressure 0.5 - 10 kPa at STP.
 Inherently biodegradable, fulfilling criteria.

Amounts used

Annual site tonnage: 90,000 tonnes

Frequency and duration of use

Continuous release.
 Emission days: 300 days/year

Environmental factors not influenced by risk management measures

Dilution Local freshwater dilution factor: 10
 Local marine water dilution factor: 100
 Receiving surface water flow: 18000 m³/day

Risk management measures

Good practice Store all VOC-containing wastes in closed, secure containers (e.g. bulk tanks, intermediate bulk containers, drums). Site should have a spill plan to ensure that adequate safeguards are in place to minimise the impact of episodic releases. A leak prevention plan is needed to prevent low level continual releases. A storm water management plan is needed to ensure that the wastewater treatment plant is not overloaded with uncontaminated water. Minimise water use and curtail all unnecessary waste water generation.

STP type Onsite STP.

STP details Assumed onsite sewage treatment plant flow: 2000 m³/day

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air No air emission controls required; required removal efficiency is 0%.

Water Provide onsite wastewater removal efficiency of 80%.

Soil Soil emission controls are not applicable as there is no direct release to soil.
 Risk from environmental exposure is driven by marine sediment.

Conditions and measures related to external treatment of waste for disposal

Formulation and packing of mixtures

Waste treatment	Anaerobic biological treatment Sedimentation of solids by air flotation
Disposal method	This material and its container must be disposed of as hazardous waste. Contain and dispose of waste according to local regulations. Domestic sewage treatment is not assumed.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure 0.5 - 10 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.
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Technical conditions and measures at process level (source) to prevent release

Technical protective measures	Ensure material transfers are under containment or extract ventilation. Provide extract ventilation to points where emissions occur. Drain or remove substance from equipment prior to break-in or maintenance.
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Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Assumes a good basic standard of occupational hygiene is implemented.
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3. Exposure estimation (Environment 1)

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. The use is assessed to be safe.

3. Exposure estimation (Health 1)

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. The use is assessed to be safe.



Exposure scenario Use in Cleaning Agents - Industrial

Identification

Product name	t-Butyl Alcohol
REACH registration number	01-2119444321-51-XXXX
CAS number	75-65-0
EC number	200-889-7
Supplier	Univar Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 sds@univar.com

1. Title of exposure scenario

Main title	Use in Cleaning Agents - Industrial
Process scope	Covers the use as a component of cleaning products, including transfer from storage, pouring/unloading from drums or containers and exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand), related equipment cleaning and maintenance.
Main sector	SU3 Industrial uses
<u>Environment</u>	
Environmental release category	ERC4 Industrial use of processing aids in processes and products, not becoming part of articles.
<u>Worker</u>	
Process category	PROC2 Use in closed, continuous process with occasional controlled exposure PROC3 Use in closed batch process (synthesis or formulation). PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises. PROC7 Spraying in industrial settings and applications. PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. PROC10 Roller application or brushing of adhesive and other coating. PROC13 Treatment of articles by dipping and pouring.

2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Liquid
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Use in Cleaning Agents - Industrial

Vapour pressure Vapour pressure 0.5 - 10 kPa at STP.
Inherently biodegradable, fulfilling criteria.

Amounts used

Annual site tonnage: 160,000 tonnes

Frequency and duration of use

Continuous release.
Emission days: 300 days/year

Environmental factors not influenced by risk management measures

Dilution Local freshwater dilution factor: 10
Local marine water dilution factor: 100
Receiving surface water flow: 18000 m³/day

Risk management measures

Good practice Store all VOC-containing wastes in closed, secure containers (e.g. bulk tanks, intermediate bulk containers, drums). Site should have a spill plan to ensure that adequate safeguards are in place to minimise the impact of episodic releases. A leak prevention plan is needed to prevent low level continual releases. A storm water management plan is needed to ensure that the wastewater treatment plant is not overloaded with uncontaminated water. Minimise water use and curtail all unnecessary waste water generation.

STP type Onsite STP.

STP details Assumed onsite sewage treatment plant flow: 5000 m³/day

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air No air emission controls required; required removal efficiency is 0%.

Water Provide onsite wastewater removal efficiency of 95%.

Soil Soil emission controls are not applicable as there is no direct release to soil.
Risk from environmental exposure is driven by marine sediment.

Conditions and measures related to external treatment of waste for disposal

Waste treatment Anaerobic biological treatment Sedimentation of solids by air flotation

Disposal method This material and its container must be disposed of as hazardous waste. Contain and dispose of waste according to local regulations.
Domestic sewage treatment is not assumed.

2. Conditions of use affecting exposure (Workers - Health 1)

Control of workers exposure

Process category PROC2 Use in closed, continuous process with occasional controlled exposure
PROC3 Use in closed batch process (synthesis or formulation).
PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises.
PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.
PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities.
PROC10 Roller application or brushing of adhesive and other coating.
PROC13 Treatment of articles by dipping and pouring.

Product characteristics

Use in Cleaning Agents - Industrial

Physical state	Liquid
Vapour pressure	Vapour pressure 0.5 - 10 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.
Ventilation rate	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Technical conditions and measures at process level (source) to prevent release

Technical protective measures	Ensure material transfers are under containment or extract ventilation. Provide extract ventilation to points where emissions occur. Drain or remove substance from equipment prior to break-in or maintenance.
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Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Assumes a good basic standard of occupational hygiene is implemented. Avoid carrying out activities involving exposure for more than 4 hours.
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Risk management measures

If above technical/organisational control measures are not feasible, then adopt following PPE:
Wear a respirator conforming to EN140 with Type A filter or better.

2. Conditions of use affecting exposure (Workers - Health 2)

Control of workers exposure

Process category	PROC7 Spraying in industrial settings and applications.
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Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure 0.5 - 10 kPa at STP.
Concentration details	Concentration of substance in product: 100%

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.
Ventilation rate	Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Assumes a good basic standard of occupational hygiene is implemented. Avoid carrying out activities involving exposure for more than 1 hour.
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Risk management measures

Wear a respirator conforming to EN140 with Type A filter or better.

3. Exposure estimation (Environment 1)

Use in Cleaning Agents - Industrial

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. The use is assessed to be safe.

3. Exposure estimation (Health 1)

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. The use is assessed to be safe.



Exposure scenario

Use in Coatings - Industrial

Identification

Product name	t-Butyl Alcohol
REACH registration number	01-2119444321-51-XXXX
CAS number	75-65-0
EC number	200-889-7
Supplier	Univar Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 sds@univar.com

1. Title of exposure scenario

Main title	Use in Coatings - Industrial
Process scope	Covers the use in coatings (paints, inks, adhesives, etc.), including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, brush, spreader by hand or similar methods and film formation) and equipment cleaning, maintenance and associated laboratory activities.
Main sector	SU3 Industrial uses
<u>Environment</u>	
Environmental release category	ERC4 Industrial use of processing aids in processes and products, not becoming part of articles.

Worker

Use in Coatings - Industrial

Process category	PROC2 Use in closed, continuous process with occasional controlled exposure PROC3 Use in closed batch process (synthesis or formulation). PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises. PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact). PROC7 Spraying in industrial settings and applications. PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing). PROC10 Roller application or brushing of adhesive and other coating. PROC13 Treatment of articles by dipping and pouring. PROC14 Production of preparations or articles by tableting, compression, extrusion, pelletisation. PROC15 Use as laboratory reagent.
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure 0.5 - 10 kPa at STP. Inherently biodegradable, fulfilling criteria.

Amounts used

Annual site tonnage: 160,000 tonnes

Frequency and duration of use

Continuous release.
Emission days: 300 days/year

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100 Receiving surface water flow: 18000 m³/day
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Risk management measures

Good practice	Store all VOC-containing wastes in closed, secure containers (e.g. bulk tanks, intermediate bulk containers, drums). Site should have a spill plan to ensure that adequate safeguards are in place to minimise the impact of episodic releases. A leak prevention plan is needed to prevent low level continual releases. A storm water management plan is needed to ensure that the wastewater treatment plant is not overloaded with uncontaminated water. Minimise water use and curtail all unnecessary waste water generation.
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STP type	Onsite STP.
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STP details	Assumed onsite sewage treatment plant flow: 5000 m ³ /day
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Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air	No air emission controls required; required removal efficiency is 0%.
Water	Provide onsite wastewater removal efficiency of 95%.
Soil	Soil emission controls are not applicable as there is no direct release to soil.

Use in Coatings - Industrial

Risk from environmental exposure is driven by marine sediment.

Conditions and measures related to external treatment of waste for disposal

Waste treatment	Anaerobic biological treatment Sedimentation of solids by air flotation
Disposal method	This material and its container must be disposed of as hazardous waste. Contain and dispose of waste according to local regulations. Domestic sewage treatment is not assumed.

2. Conditions of use affecting exposure (Workers - Health 1)

Control of workers exposure

Process category	PROC2 Use in closed, continuous process with occasional controlled exposure PROC3 Use in closed batch process (synthesis or formulation). PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises. PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. PROC10 Roller application or brushing of adhesive and other coating. PROC13 Treatment of articles by dipping and pouring.
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Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure 0.5 - 10 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.
Ventilation rate	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Technical conditions and measures at process level (source) to prevent release

Technical protective measures	Ensure material transfers are under containment or extract ventilation. Provide extract ventilation to points where emissions occur. Drain or remove substance from equipment prior to break-in or maintenance.
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Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Assumes a good basic standard of occupational hygiene is implemented. Clear up spills immediately and dispose of waste safely.
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Risk management measures

If above technical/organisational control measures are not feasible, then adopt following PPE:
Wear a respirator conforming to EN140 with Type A filter or better.

Additional advice	Avoid manual contact with wet work pieces.
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2. Conditions of use affecting exposure (Workers - Health 2)

Control of workers exposure

Process category	PROC7 Spraying in industrial settings and applications.
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Product characteristics

Use in Coatings - Industrial

Physical state	Liquid
Vapour pressure	Vapour pressure 0.5 - 10 kPa at STP.
Concentration details	Concentration of substance in product: 100%

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.
Ventilation rate	Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Spraying (automatic/robotic) Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor of > 20. , or: Manual spraying Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Assumes a good basic standard of occupational hygiene is implemented.

Risk management measures

Manual spraying
Wear a respirator conforming to EN140 with Type A filter or better.

3. Exposure estimation (Environment 1)

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. The use is assessed to be safe.

3. Exposure estimation (Health 1)

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. The use is assessed to be safe.



Exposure scenario

Use in Waste Water Treatment - Industrial

Identification

Product name	t-Butyl Alcohol
REACH registration number	01-2119444321-51-XXXX
CAS number	75-65-0
EC number	200-889-7
Supplier	Univar Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 sds@univar.com

1. Title of exposure scenario

Main title	Use in Waste Water Treatment - Industrial
Process scope	Covers the use of the substance for the treatment of water at industrial facilities in open and closed systems.
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC4 Industrial use of processing aids in processes and products, not becoming part of articles.
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Worker

Process category	PROC1 Use in closed process, no likelihood of exposure. PROC2 Use in closed, continuous process with occasional controlled exposure PROC3 Use in closed batch process (synthesis or formulation). PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises. PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. PROC13 Treatment of articles by dipping and pouring.
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure 0.5 - 10 kPa at STP. Inherently biodegradable, fulfilling criteria.

Use in Waste Water Treatment - Industrial

Amounts used

Annual site tonnage: 160,000 tonnes

Frequency and duration of use

Continuous release.

Emission days: 300 days/year

Environmental factors not influenced by risk management measures

Dilution Local freshwater dilution factor: 10
Local marine water dilution factor: 100
Receiving surface water flow: 18000 m³/day

Risk management measures

Good practice Store all VOC-containing wastes in closed, secure containers (e.g. bulk tanks, intermediate bulk containers, drums). Site should have a spill plan to ensure that adequate safeguards are in place to minimise the impact of episodic releases. A leak prevention plan is needed to prevent low level continual releases. A storm water management plan is needed to ensure that the wastewater treatment plant is not overloaded with uncontaminated water. Minimise water use and curtail all unnecessary waste water generation.

STP type Onsite STP.

STP details Assumed onsite sewage treatment plant flow: 5000 m³/day

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air No air emission controls required; required removal efficiency is 0%.

Water Provide onsite wastewater removal efficiency of 95%.

Soil Soil emission controls are not applicable as there is no direct release to soil.
Risk from environmental exposure is driven by marine sediment.

Conditions and measures related to external treatment of waste for disposal

Waste treatment Anaerobic biological treatment Sedimentation of solids by air flotation

Disposal method This material and its container must be disposed of as hazardous waste. Contain and dispose of waste according to local regulations.

Domestic sewage treatment is not assumed.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state Liquid

Vapour pressure Vapour pressure 0.5 - 10 kPa at STP.

Concentration details Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Temperature Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Ventilation rate Provide enhanced general ventilation by mechanical means.

Technical conditions and measures at process level (source) to prevent release

Use in Waste Water Treatment - Industrial

Technical protective measures Handle substance within a closed system. Ensure material transfers are under containment or extract ventilation. Provide extract ventilation to points where emissions occur. Drain or remove substance from equipment prior to break-in or maintenance. Retain drain-downs in sealed storage pending disposal or for subsequent recycle.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Assumes a good basic standard of occupational hygiene is implemented. Avoid carrying out activities involving exposure for more than 1 hour.

Risk management measures

If above technical/organisational control measures are not feasible, then adopt following PPE:
Wear a respirator conforming to EN140 with Type A filter or better.

3. Exposure estimation (Environment 1)

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. The use is assessed to be safe.

3. Exposure estimation (Health 1)

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. The use is assessed to be safe.



Exposure scenario

Use in laboratories - Industrial

Identification

Product name	t-Butyl Alcohol
REACH registration number	01-2119444321-51-XXXX
CAS number	75-65-0
EC number	200-889-7
Supplier	Univar Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 sds@univar.com

1. Title of exposure scenario

Main title	Use in laboratories - Industrial
Process scope	Use of the substance within laboratory settings, including material transfers and equipment cleaning.
Main sector	SU3 Industrial uses
<u>Environment</u>	
Environmental release category	ERC4 Industrial use of processing aids in processes and products, not becoming part of articles.
<u>Worker</u>	
Process category	PROC10 Roller application or brushing of adhesive and other coating. PROC15 Use as laboratory reagent.

2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure 0.5 - 10 kPa at STP. Inherently biodegradable, fulfilling criteria.

Amounts used

Annual site tonnage: 160,000 tonnes

Frequency and duration of use

Continuous release.
Emission days: 300 days/year

Use in laboratories - Industrial

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100 Receiving surface water flow: 18000 m ³ /day
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Risk management measures

Good practice	Store all VOC-containing wastes in closed, secure containers (e.g. bulk tanks, intermediate bulk containers, drums). Site should have a spill plan to ensure that adequate safeguards are in place to minimise the impact of episodic releases. A leak prevention plan is needed to prevent low level continual releases. A storm water management plan is needed to ensure that the wastewater treatment plant is not overloaded with uncontaminated water. Minimise water use and curtail all unnecessary waste water generation.
STP type	Onsite STP.
STP details	Assumed onsite sewage treatment plant flow: 5000 m ³ /day

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air	No air emission controls required; required removal efficiency is 0%.
Water	Provide onsite wastewater removal efficiency of 95%.
Soil	Soil emission controls are not applicable as there is no direct release to soil. Risk from environmental exposure is driven by marine sediment.

Conditions and measures related to external treatment of waste for disposal

Waste treatment	Anaerobic biological treatment Sedimentation of solids by air flotation
Disposal method	This material and its container must be disposed of as hazardous waste. Contain and dispose of waste according to local regulations. Domestic sewage treatment is not assumed.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure 0.5 - 10 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.
Ventilation rate	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Technical conditions and measures at process level (source) to prevent release

Technical protective measures	Provide extract ventilation to points where emissions occur.
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Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Assumes a good basic standard of occupational hygiene is implemented.
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3. Exposure estimation (Environment 1)

Use in laboratories - Industrial

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. The use is assessed to be safe.

3. Exposure estimation (Health 1)

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. The use is assessed to be safe.



Exposure scenario

Use in Waste Water Treatment - Professional

Identification

Product name	t-Butyl Alcohol
REACH registration number	01-2119444321-51-XXXX
CAS number	75-65-0
EC number	200-889-7
Supplier	Univar Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 sds@univar.com

1. Title of exposure scenario

Main title	Use in Waste Water Treatment - Professional
Process scope	Covers the use of the substance for the treatment of water at industrial facilities in open and closed systems.
Main sector	SU22 Professional uses

Environment

Environmental release category	ERC8d Wide dispersive outdoor use of processing aids in open systems.
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Worker

Process category	PROC1 Use in closed process, no likelihood of exposure. PROC2 Use in closed, continuous process with occasional controlled exposure PROC3 Use in closed batch process (synthesis or formulation). PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises. PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. PROC13 Treatment of articles by dipping and pouring.
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure 0.5 - 10 kPa at STP. Inherently biodegradable, fulfilling criteria.

Use in Waste Water Treatment - Professional

Amounts used

Annual site tonnage: 160,000 tonnes

Frequency and duration of use

Dispersive use.
Emission days: 300 days/year

Environmental factors not influenced by risk management measures

Dilution Local freshwater dilution factor: 10
Local marine water dilution factor: 100
Receiving surface water flow: 18000 m³/day

Risk management measures

Good practice Store all VOC-containing wastes in closed, secure containers (e.g. bulk tanks, intermediate bulk containers, drums). Site should have a spill plan to ensure that adequate safeguards are in place to minimise the impact of episodic releases. A leak prevention plan is needed to prevent low level continual releases. A storm water management plan is needed to ensure that the wastewater treatment plant is not overloaded with uncontaminated water. Minimise water use and curtail all unnecessary waste water generation.

STP type Municipal STP.

STP details Assumed domestic sewage treatment plant flow: 2000 m³/day
Estimated substance removal from wastewater via domestic sewage treatment: 54%

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air No air emission controls required; required removal efficiency is 0%.

Soil Soil emission controls are not applicable as there is no direct release to soil.
Risk from environmental exposure is driven by marine sediment.

Conditions and measures related to external treatment of waste for disposal

Waste treatment Anaerobic biological treatment Sedimentation of solids by air flotation

Disposal method This material and its container must be disposed of as hazardous waste. Contain and dispose of waste according to local regulations.
Domestic sewage treatment is not assumed.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state Liquid

Vapour pressure Vapour pressure 0.5 - 10 kPa at STP.

Concentration details Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Temperature Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Ventilation rate Provide enhanced general ventilation by mechanical means.

Technical conditions and measures at process level (source) to prevent release

Use in Waste Water Treatment - Professional

Technical protective measures Handle substance within a closed system. Ensure material transfers are under containment or extract ventilation. Provide extract ventilation to points where emissions occur. Drain or remove substance from equipment prior to break-in or maintenance. Retain drain-downs in sealed storage pending disposal or for subsequent recycle.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Assumes a good basic standard of occupational hygiene is implemented. Avoid carrying out activities involving exposure for more than 1 hour.

Risk management measures

If above technical/organisational control measures are not feasible, then adopt following PPE:
Wear a respirator conforming to EN140 with Type A filter or better.

3. Exposure estimation (Environment 1)

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. The use is assessed to be safe.

3. Exposure estimation (Health 1)

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. The use is assessed to be safe.



Exposure scenario

Use in Cleaning Agents - Professional

Identification

Product name	t-Butyl Alcohol
REACH registration number	01-2119444321-51-XXXX
CAS number	75-65-0
EC number	200-889-7
Supplier	Univar Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 sds@univar.com

1. Title of exposure scenario

Main title	Use in Cleaning Agents - Professional
Process scope	Covers the use as a component of cleaning products, including pouring/unloading from drums or containers and exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand).
Main sector	SU22 Professional uses
<u>Environment</u>	
Environmental release category	ERC8a Wide dispersive indoor use of processing aids in open systems. ERC8d Wide dispersive outdoor use of processing aids in open systems.
<u>Worker</u>	
Process category	PROC2 Use in closed, continuous process with occasional controlled exposure PROC3 Use in closed batch process (synthesis or formulation). PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises. PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. PROC10 Roller application or brushing of adhesive and other coating. PROC11 Spraying outside industrial settings and/or applications. PROC13 Treatment of articles by dipping and pouring.

2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure 0.5 - 10 kPa at STP.

Use in Cleaning Agents - Professional

Inherently biodegradable, fulfilling criteria.

Amounts used

Annual site tonnage: 10,000 tonnes

Frequency and duration of use

Dispersive use.

Emission days: 300 days/year

Environmental factors not influenced by risk management measures

Dilution Local freshwater dilution factor: 10
Local marine water dilution factor: 100
Receiving surface water flow: 18000 m³/day

Risk management measures

Good practice Store all VOC-containing wastes in closed, secure containers (e.g. bulk tanks, intermediate bulk containers, drums). Site should have a spill plan to ensure that adequate safeguards are in place to minimise the impact of episodic releases. A leak prevention plan is needed to prevent low level continual releases. A storm water management plan is needed to ensure that the wastewater treatment plant is not overloaded with uncontaminated water. Minimise water use and curtail all unnecessary waste water generation.

STP type Municipal STP.

STP details Assumed domestic sewage treatment plant flow: 2000 m³/day
Estimated substance removal from wastewater via domestic sewage treatment: 54%

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air No air emission controls required; required removal efficiency is 0%.

Soil Soil emission controls are not applicable as there is no direct release to soil.
Risk from environmental exposure is driven by marine sediment.

Conditions and measures related to external treatment of waste for disposal

Disposal method This material and its container must be disposed of as hazardous waste. Contain and dispose of waste according to local regulations.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state Liquid

Vapour pressure Vapour pressure 0.5 - 10 kPa at STP.

Concentration details Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Temperature Assumes use at not more than 20°C above ambient temperature, unless stated differently.

Ventilation rate Provide a good standard of controlled ventilation (10 to 15 air changes per hour). Provide enhanced general ventilation by mechanical means.

Technical conditions and measures at process level (source) to prevent release

Use in Cleaning Agents - Professional

Technical protective measures Ensure material transfers are under containment or extract ventilation. Provide extract ventilation to points where emissions occur. Drain or remove substance from equipment prior to break-in or maintenance. Limit the substance content in the product to 25%.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Assumes a good basic standard of occupational hygiene is implemented. Avoid carrying out activities involving exposure for more than 1 hour.

Risk management measures

Wear suitable gloves tested to EN374.

If above technical/organisational control measures are not feasible, then adopt following PPE:

Wear a respirator conforming to EN140 with Type A filter or better.

3. Exposure estimation (Environment 1)

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. The use is assessed to be safe.

3. Exposure estimation (Health 1)

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. The use is assessed to be safe.



Exposure scenario

Use in Coatings - Professional

Identification

Product name	t-Butyl Alcohol
REACH registration number	01-2119444321-51-XXXX
CAS number	75-65-0
EC number	200-889-7
Supplier	Univar Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 sds@univar.com

1. Title of exposure scenario

Main title	Use in Coatings - Professional
Process scope	Covers the use in coatings (paints, inks, adhesives, etc.), including exposures during use (including product transfer and preparation, application by brush, spray by hand or similar methods) and equipment cleaning.
Main sector	SU22 Professional uses

Environment

Environmental release category	ERC8a Wide dispersive indoor use of processing aids in open systems. ERC8d Wide dispersive outdoor use of processing aids in open systems.
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Worker

Process category	PROC1 Use in closed process, no likelihood of exposure. PROC2 Use in closed, continuous process with occasional controlled exposure PROC3 Use in closed batch process (synthesis or formulation). PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises. PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact). PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities. PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities. PROC10 Roller application or brushing of adhesive and other coating. PROC11 Spraying outside industrial settings and/or applications. PROC13 Treatment of articles by dipping and pouring. PROC15 Use as laboratory reagent. PROC19 Hand-mixing with intimate contact and only PPE available.
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Use in Coatings - Professional

2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure 0.5 - 10 kPa at STP. Inherently biodegradable, fulfilling criteria.

Amounts used

Annual site tonnage: 15,000 tonnes

Frequency and duration of use

Dispersive use.
Emission days: 300 days/year

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100 Receiving surface water flow: 18000 m ³ /day
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Risk management measures

Good practice	Store all VOC-containing wastes in closed, secure containers (e.g. bulk tanks, intermediate bulk containers, drums). Site should have a spill plan to ensure that adequate safeguards are in place to minimise the impact of episodic releases. A leak prevention plan is needed to prevent low level continual releases. A storm water management plan is needed to ensure that the wastewater treatment plant is not overloaded with uncontaminated water. Minimise water use and curtail all unnecessary waste water generation.
STP type	Municipal STP.
STP details	Assumed domestic sewage treatment plant flow: 2000 m ³ /day Estimated substance removal from wastewater via domestic sewage treatment: 54%

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air	No air emission controls required; required removal efficiency is 0%.
Soil	Soil emission controls are not applicable as there is no direct release to soil. Risk from environmental exposure is driven by marine sediment.

Conditions and measures related to external treatment of waste for disposal

Disposal method	This material and its container must be disposed of as hazardous waste. Contain and dispose of waste according to local regulations.
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure 0.5 - 10 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.
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Use in Coatings - Professional

Ventilation rate Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Provide enhanced general ventilation by mechanical means.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Ensure material transfers are under containment or extract ventilation. Provide extract ventilation to points where emissions occur. Drain or remove substance from equipment prior to break-in or maintenance. Limit the substance content in the product to 25%.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Assumes a good basic standard of occupational hygiene is implemented. Avoid carrying out activities involving exposure for more than 1 hour. Avoid manual contact with wet work pieces.

Risk management measures

Wear suitable gloves tested to EN374.
If above technical/organisational control measures are not feasible, then adopt following PPE:
Wear a respirator conforming to EN140 with Type A filter or better.

3. Exposure estimation (Environment 1)

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. The use is assessed to be safe.

3. Exposure estimation (Health 1)

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. The use is assessed to be safe.



Exposure scenario

Use in Laboratories - Professional

Identification

Product name	t-Butyl Alcohol
REACH registration number	01-2119444321-51-XXXX
CAS number	75-65-0
EC number	200-889-7
Supplier	Univar Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 sds@univar.com

1. Title of exposure scenario

Main title	Use in Laboratories - Professional
Process scope	Use of the substance within laboratory settings, including material transfers and equipment cleaning.
Main sector	SU22 Professional uses
<u>Environment</u>	
Environmental release category	ERC8a Wide dispersive indoor use of processing aids in open systems.
<u>Worker</u>	
Process category	PROC10 Roller application or brushing of adhesive and other coating. PROC15 Use as laboratory reagent.

2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure 0.5 - 10 kPa at STP. Inherently biodegradable, fulfilling criteria.

Amounts used

Annual site tonnage: 1,000 tonnes

Frequency and duration of use

Dispersive use.
Emission days: 300 days/year

Use in Laboratories - Professional

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100 Receiving surface water flow: 18000 m ³ /day
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Risk management measures

Good practice	Store all VOC-containing wastes in closed, secure containers (e.g. bulk tanks, intermediate bulk containers, drums). Site should have a spill plan to ensure that adequate safeguards are in place to minimise the impact of episodic releases. A leak prevention plan is needed to prevent low level continual releases. A storm water management plan is needed to ensure that the wastewater treatment plant is not overloaded with uncontaminated water. Minimise water use and curtail all unnecessary waste water generation.
STP type	Onsite STP.
STP details	Assumed domestic sewage treatment plant flow: 2000 m ³ /day Estimated substance removal from wastewater via domestic sewage treatment: 54%

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air	No air emission controls required; required removal efficiency is 0%.
Soil	Soil emission controls are not applicable as there is no direct release to soil. Risk from environmental exposure is driven by marine sediment.

Conditions and measures related to external treatment of waste for disposal

Disposal method	This material and its container must be disposed of as hazardous waste. Contain and dispose of waste according to local regulations. Domestic sewage treatment is not assumed.
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2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure 0.5 - 10 kPa at STP.
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Temperature	Assumes use at not more than 20°C above ambient temperature, unless stated differently.
Ventilation rate	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).

Technical conditions and measures at process level (source) to prevent release

Technical protective measures	Provide extract ventilation to points where emissions occur.
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Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Assumes a good basic standard of occupational hygiene is implemented.
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3. Exposure estimation (Environment 1)

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. The use is assessed to be safe.

Use in Laboratories - Professional

3. Exposure estimation (Health 1)

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. The use is assessed to be safe.



Exposure scenario

Use in cleaning products - Consumer

Identification

Product name	t-Butyl Alcohol
REACH registration number	01-2119444321-51-XXXX
CAS number	75-65-0
EC number	200-889-7
Supplier	Univar Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 sds@univar.com

1. Title of exposure scenario

Main title	Use in cleaning products - Consumer
Process scope	Covers general exposures to consumers arising from the use of household products sold as washing and cleaning products, aerosols, coatings, de-icers, lubricants and air care products.
Product category	PC35 Washing and cleaning products (including solvent-based products).
Main sector	SU21 Consumer uses
<u>Environment</u>	
Environmental release category	ERC8a Wide dispersive indoor use of processing aids in open systems. ERC8d Wide dispersive outdoor use of processing aids in open systems.

2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure 0.5 - 10 kPa at STP. Inherently biodegradable, fulfilling criteria.

Amounts used

Annual site tonnage: 10,000 tonnes

Frequency and duration of use

Dispersive use.
Emission days: 300 days/year

Environmental factors not influenced by risk management measures

Use in cleaning products - Consumer

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100 Receiving surface water flow: 18000 m ³ /day
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Risk management measures

Good practice	Store all VOC-containing wastes in closed, secure containers (e.g. bulk tanks, intermediate bulk containers, drums). Site should have a spill plan to ensure that adequate safeguards are in place to minimise the impact of episodic releases. A leak prevention plan is needed to prevent low level continual releases. A storm water management plan is needed to ensure that the wastewater treatment plant is not overloaded with uncontaminated water. Minimise water use and curtail all unnecessary waste water generation.
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STP type	Municipal STP.
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STP details	Assumed domestic sewage treatment plant flow: 2000 m ³ /day Estimated substance removal from wastewater via domestic sewage treatment: 54%
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Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air	No air emission controls required; required removal efficiency is 0%.
Soil	Soil emission controls are not applicable as there is no direct release to soil. Risk from environmental exposure is driven by marine sediment.

Conditions and measures related to external treatment of waste for disposal

Disposal method	This material and its container must be disposed of as hazardous waste. Contain and dispose of waste according to local regulations.
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2. Conditions of use affecting exposure (Non-industrial - Environment 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure 0.5 - 10 kPa at STP. Inherently biodegradable, fulfilling criteria.

Frequency and duration of use

Dispersive use.
Emission days: 300 days/year

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100 Receiving surface water flow: 18,000 m ³ /day
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Risk management measures

STP type	Municipal STP.
STP details	Assumed domestic sewage treatment plant flow: 2,000 m ³ /day Estimated substance removal from wastewater via domestic sewage treatment: 54%

Conditions and measures related to external treatment of waste for disposal

Disposal method	This material and its container must be disposed of as hazardous waste.
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2. Conditions of use affecting exposure (Non-industrial - Health 1)

Product characteristics

Use in cleaning products - Consumer

Physical state	Liquid
Vapour pressure	Vapour pressure 0.5 - 10 kPa at STP.
Concentration details	Maximum concentration after dilution for use: 1.2 %

Frequency and duration of use

Covers daily exposure up to 1hour
For each use event, covers use amounts up to 60 g.

Human factors not influenced by risk management

Potentially exposed body parts	Covers skin contact area up to 2028 cm².
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Other given operational conditions affecting Non-industrial exposure

Consumer information	For each use event, avoid swallowing amounts more than 0 g.
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3. Exposure estimation (Environment 1)

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. The use is assessed to be safe.

3. Exposure estimation (Health 1)

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. The use is assessed to be safe.



Exposure scenario

Use in Adhesives and Sealants - Consumer

Identification

Product name	t-Butyl Alcohol
REACH registration number	01-2119444321-51-XXXX
CAS number	75-65-0
EC number	200-889-7
Supplier	Univar Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 sds@univar.com

1. Title of exposure scenario

Main title	Use in Adhesives and Sealants - Consumer
Process scope	Covers the use in coatings (paints, inks, adhesives, etc.), including exposures during use (including product transfer and preparation, application by brush, spray by hand or similar methods) and equipment cleaning.
Product category	PC1 Adhesives, sealants.
Main sector	SU21 Consumer uses
<u>Environment</u>	
Environmental release category	ERC8a Wide dispersive indoor use of processing aids in open systems. ERC8d Wide dispersive outdoor use of processing aids in open systems.

2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure 0.5 - 10 kPa at STP. Inherently biodegradable, fulfilling criteria.

Amounts used

Annual site tonnage: 10,000 tonnes

Frequency and duration of use

Dispersive use.
Emission days: 300 days/year

Environmental factors not influenced by risk management measures

Use in Adhesives and Sealants - Consumer

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100 Receiving surface water flow: 18000 m ³ /day
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Risk management measures

Good practice	Store all VOC-containing wastes in closed, secure containers (e.g. bulk tanks, intermediate bulk containers, drums). Site should have a spill plan to ensure that adequate safeguards are in place to minimise the impact of episodic releases. A leak prevention plan is needed to prevent low level continual releases. A storm water management plan is needed to ensure that the wastewater treatment plant is not overloaded with uncontaminated water. Minimise water use and curtail all unnecessary waste water generation.
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STP type	Municipal STP.
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STP details	Assumed domestic sewage treatment plant flow: 2000 m ³ /day Estimated substance removal from wastewater via domestic sewage treatment: 54%
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Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air	No air emission controls required; required removal efficiency is 0%.
Soil	Soil emission controls are not applicable as there is no direct release to soil. Risk from environmental exposure is driven by marine sediment.

Conditions and measures related to external treatment of waste for disposal

Disposal method	This material and its container must be disposed of as hazardous waste. Contain and dispose of waste according to local regulations.
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2. Conditions of use affecting exposure (Non-industrial - Environment 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure 0.5 - 10 kPa at STP. Inherently biodegradable, fulfilling criteria.

Frequency and duration of use

Dispersive use.
Emission days: 300 days/year

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100 Receiving surface water flow: 18,000 m ³ /day
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Risk management measures

STP type	Municipal STP.
STP details	Assumed domestic sewage treatment plant flow: 2,000 m ³ /day Estimated substance removal from wastewater via domestic sewage treatment: 54%

Conditions and measures related to external treatment of waste for disposal

Disposal method	This material and its container must be disposed of as hazardous waste.
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2. Conditions of use affecting exposure (Non-industrial - Health 1)

Product characteristics

Use in Adhesives and Sealants - Consumer

Physical state	Liquid
Vapour pressure	Vapour pressure 0.5 - 10 kPa at STP.
Concentration details	Covers concentrations up to 30 %.

Frequency and duration of use

Covers daily exposure up to 4hours
For each use event, covers use amounts up to 9000 g.

Human factors not influenced by risk management

Potentially exposed body parts	Covers skin contact area up to 430 cm ² .
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Other given operational conditions affecting Non-industrial exposure

Ventilation rate	Covers use under typical household ventilation.
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Other given operational conditions affecting Non-industrial exposure

Consumer information	For each use event, avoid swallowing amounts more than 0 g.
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3. Exposure estimation (Environment 1)

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. The use is assessed to be safe.

3. Exposure estimation (Health 1)

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. The use is assessed to be safe.



Exposure scenario

Use in Coatings - Consumer

Identification

Product name	t-Butyl Alcohol
REACH registration number	01-2119444321-51-XXXX
CAS number	75-65-0
EC number	200-889-7
Supplier	Univar Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 sds@univar.com

1. Title of exposure scenario

Main title	Use in Coatings - Consumer
Process scope	Covers the use in coatings (paints, inks, adhesives, etc.), including exposures during use (including product transfer and preparation, application by brush, spray by hand or similar methods) and equipment cleaning.
Product category	PC9a Coatings and paints, thinners, paint removers. PC9b Fillers, putties, plasters, modelling clay.
Main sector	SU21 Consumer uses
<u>Environment</u>	
Environmental release category	ERC8a Wide dispersive indoor use of processing aids in open systems. ERC8d Wide dispersive outdoor use of processing aids in open systems.

2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure 0.5 - 10 kPa at STP. Inherently biodegradable, fulfilling criteria.

Amounts used

Annual site tonnage: 10,000 tonnes

Frequency and duration of use

Dispersive use.
Emission days: 300 days/year

Use in Coatings - Consumer

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100 Receiving surface water flow: 18000 m ³ /day
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Risk management measures

Good practice	Store all VOC-containing wastes in closed, secure containers (e.g. bulk tanks, intermediate bulk containers, drums). Site should have a spill plan to ensure that adequate safeguards are in place to minimise the impact of episodic releases. A leak prevention plan is needed to prevent low level continual releases. A storm water management plan is needed to ensure that the wastewater treatment plant is not overloaded with uncontaminated water. Minimise water use and curtail all unnecessary waste water generation.
STP type	Municipal STP.
STP details	Assumed domestic sewage treatment plant flow: 2000 m ³ /day Estimated substance removal from wastewater via domestic sewage treatment: 54%

Technical onsite conditions and measures to reduce or limit discharges to air, water and soil

Air	No air emission controls required; required removal efficiency is 0%.
Soil	Soil emission controls are not applicable as there is no direct release to soil. Risk from environmental exposure is driven by marine sediment.

Conditions and measures related to external treatment of waste for disposal

Disposal method	This material and its container must be disposed of as hazardous waste. Contain and dispose of waste according to local regulations.
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2. Conditions of use affecting exposure (Non-industrial - Environment 1)

Product characteristics

Physical state	Liquid
Vapour pressure	Vapour pressure 0.5 - 10 kPa at STP. Inherently biodegradable, fulfilling criteria.

Frequency and duration of use

Dispersive use.
Emission days: 300 days/year

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10 Local marine water dilution factor: 100 Receiving surface water flow: 18,000 m ³ /day
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Risk management measures

STP type	Municipal STP.
STP details	Assumed domestic sewage treatment plant flow: 2,000 m ³ /day Estimated substance removal from wastewater via domestic sewage treatment: 54%

Conditions and measures related to external treatment of waste for disposal

Disposal method	This material and its container must be disposed of as hazardous waste.
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2. Conditions of use affecting exposure (Non-industrial - Health 1)

Product characteristics

Use in Coatings - Consumer

Physical state	Liquid
Vapour pressure	Vapour pressure 0.5 - 10 kPa at STP.
Concentration details	Covers concentrations up to 30 %.

Frequency and duration of use

Covers daily exposure up to 4hours
For each use event, covers use amounts up to 25000 g.

Human factors not influenced by risk management

Potentially exposed body parts	Covers skin contact area up to 860 cm ² .
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Other given operational conditions affecting Non-industrial exposure

Ventilation rate	Covers use under typical household ventilation.
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Other given operational conditions affecting Non-industrial exposure

Consumer information	For each use event, avoid swallowing amounts more than 0 g.
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3. Exposure estimation (Environment 1)

Predicted exposures are not expected to exceed the applicable exposure limits (given in Section 8 of the SDS) when the operational conditions/risk management measures given in Section 2 are implemented. The use is assessed to be safe.

3. Exposure estimation (Health 1)

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. The use is assessed to be safe.