

Material Safety Data Sheet

tert-Butyl nitrite, tech., 90%

ACC# 60293

Section 1 - Chemical Product and Company Identification

MSDS Name: tert-Butyl nitrite, tech., 90%

Catalog Numbers: AC216220000, AC216221000, AC216225000

Synonyms: None.

Company Identification:

Acros Organics N.V.

One Reagent Lane

Fair Lawn, NJ 07410

For information in North America, call: 800-ACROS-01

For emergencies in the US, call CHEMTREC: 800-424-9300

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
540-80-7	tert-Butyl nitrite	90	208-757-0
75-65-0	Tert-butyl alcohol	10	200-889-7

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: clear yellow liquid. Flash Point: -10 deg C.

Danger! Extremely flammable liquid and vapor. Vapor may cause flash fire. Causes respiratory tract irritation. Lachrymator (substance which increases the flow of tears). Causes eye and skin irritation. May be harmful if inhaled. May be harmful if swallowed. Light sensitive. May cause reproductive and fetal effects.

Target Organs: Blood, central nervous system, immune system, smooth muscle, ears.

Potential Health Effects

Eye: Causes eye irritation. Lachrymator (substance which increases the flow of tears). May cause permanent corneal opacification. May cause chemical conjunctivitis.

Skin: Causes skin irritation.

Ingestion: May cause gastrointestinal irritation with nausea, vomiting and diarrhea. Effects may be delayed 2 to 4 hours. Ingestion of nitrate containing compounds can lead to methemoglobinemia. May cause visual changes with blurred vision. Opacities may form in the cornea.

Inhalation: Causes respiratory tract irritation. May be harmful if inhaled. Vapors may cause dizziness or suffocation. May cause acute pulmonary edema, asphyxia, chemical pneumonitis, and upper airway obstruction caused by edema.

Chronic: Prolonged exposure may cause anemia and methemoglobinemia, characterized by dizziness, drowsiness, headache, breath shortness, cyanosis (bluish skin due to deficient oxygenation of the blood), rapid heart rate and chocolate-brown colored blood. May cause reproductive and fetal effects. Effects may be delayed. Laboratory experiments have resulted in mutagenic effects.

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid. Do NOT allow victim to rub eyes or keep eyes closed.

Skin: Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.

Ingestion: Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid.

Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. Vapors can travel to a source of ignition and flash back. Strong oxidizer. Contact with other material may cause fire. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. Use water with caution and in flooding amounts. Extremely flammable liquid and vapor. Water may be ineffective. Material is lighter than water and a fire may be spread by the use of water. Containers may explode in the heat of a fire. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas. Will be easily ignited by heat, sparks or flame.

Extinguishing Media: For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. For large fires, use water spray, fog, or alcohol-resistant foam. Use water spray to cool fire-exposed containers. Water may be ineffective. Do NOT use straight streams of water. Contact professional fire-fighters immediately.

Flash Point: -10 deg C (14.00 deg F)

Autoignition Temperature: Not applicable.

Explosion Limits, Lower:Not available.

Upper: Not available.

NFPA Rating: (estimated) Health: 2; Flammability: 3; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Remove all sources of ignition. Use a spark-proof tool. Provide ventilation. A vapor suppressing foam may be used to reduce vapors.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Ground and bond containers when transferring material. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Avoid ingestion and inhalation. Store protected from light. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Use only with adequate ventilation. Keep away from heat, sparks and flame.

Storage: Keep away from heat, sparks, and flame. Keep away from sources of ignition. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Refrigerator/flammables. Store protected from light.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
tert-Butyl nitrite	none listed	none listed	none listed
Tert-butyl alcohol	100 ppm TWA	100 ppm TWA; 300 mg/m ³ TWA 1600 ppm IDLH	100 ppm TWA; 300 mg/m ³ TWA

OSHA Vacated PELs: tert-Butyl nitrite: No OSHA Vacated PELs are listed for this chemical. Tert-butyl alcohol: 100 ppm TWA; 300 mg/m³ TWA

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

Section 9 - Physical and Chemical Properties

Physical State: Liquid

Appearance: clear yellow

Odor: None reported.

pH: Not available.

Vapor Pressure: Not available.

Vapor Density: 3.6 (air=1)

Evaporation Rate:Not available.

Viscosity: Not available.

Boiling Point: 61 - 63 deg C @ 760 mmHg

Freezing/Melting Point:Not available.

Decomposition Temperature:Not available.

Solubility: Slightly soluble.

Specific Gravity/Density:0.8670 g/cm³

Molecular Formula:C₄H₉NO₂

Molecular Weight:103.12

Section 10 - Stability and Reactivity

Chemical Stability: Many alkyl nitrites are thermally unstable and have the potential to readily decompose or explode when heated.

Conditions to Avoid: Incompatible materials, light, ignition sources, excess heat, combustible materials.

Incompatibilities with Other Materials: Reducing agents, strong acids, finely powdered metals.

Hazardous Decomposition Products: Nitrogen oxides, carbon monoxide, irritating and toxic fumes and gases, carbon dioxide, nitrogen.

Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:**CAS#** 540-80-7: RA0802000**CAS#** 75-65-0: EO1925000**LD50/LC50:****CAS#** 540-80-7:

Inhalation, mouse: LC50 = 10852 ppm/1H;

Oral, mouse: LD50 = 308 mg/kg;

CAS# 75-65-0:

Dermal, guinea pig: LD50 = >10 mL/kg;

Draize test, rabbit, eye: 100 uL/24H Severe;

Draize test, rabbit, skin: 500 uL/24H Mild;

Inhalation, rat: LC50 = >10000 ppm/4H;

Oral, rabbit: LD50 = 3559 mg/kg;

Oral, rabbit: LD50 = 3600 mg/kg;

Oral, rat: LD50 = 2743 mg/kg;

Oral, rat: LD50 = 3500 mg/kg;

Skin, rabbit: LD50 = >2 gm/kg;

Carcinogenicity:**CAS#** 540-80-7: Not listed by ACGIH, IARC, NTP, or CA Prop 65.**CAS#** 75-65-0: Not listed by ACGIH, IARC, NTP, or CA Prop 65.**Epidemiology:** No information found**Teratogenicity:** **CAS#** 75-65-0: Inhalation, rat: TClO = 2000 ppm/7H (female 1-19 day(s) after conception) Effects on Embryo or Fetus - fetotoxicity (except death, e.g., stunted fetus).**Reproductive Effects:** **CAS#** 75-65-0: Oral, mouse: TDLo = 20240 mg/kg (female 6-18 day(s) after conception) Fertility - post-implantation mortality (e.g. dead and/or resorbed implants per total number of implants).**Mutagenicity:** **CAS#** 540-80-7: Mutation in Microorganisms: Salmonella typhimurium = 10 umol/plate.**Neurotoxicity:** No information found**Other Studies:****Section 12 - Ecological Information**

No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.**RCRA U-Series:** None listed.**Section 14 - Transport Information**

	US DOT	Canada TDG
Shipping Name:	BUTYL NITRITES	BUTYL NITRITES
Hazard Class:	3	3
UN Number:	UN2351	UN2351
Packing Group:	II	II
Additional Info:		FLASHPOINT -10 C

Section 15 - Regulatory Information**US FEDERAL****TSCA****CAS#** 540-80-7 is not listed on the TSCA inventory. It is for research and development use only.**CAS#** 75-65-0 is listed on the TSCA inventory.**Health & Safety Reporting List**

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

None of the chemicals in this material have an RQ.

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

SARA Codes**CAS #** 75-65-0: immediate, fire.

Section 313

This material contains Tert-butyl alcohol (CAS# 75-65-0, 10%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

Clean Air Act:

This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 Ozone depleters.
This material does not contain any Class 2 Ozone depleters.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 540-80-7 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

CAS# 75-65-0 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations**European Labeling in Accordance with EC Directives****Hazard Symbols:**

XN F

Risk Phrases:

R 11 Highly flammable.
R 20/22 Harmful by inhalation and if swallowed.

Safety Phrases:

S 16 Keep away from sources of ignition - No smoking.
S 24 Avoid contact with skin.
S 46 If swallowed, seek medical advice immediately and show this container or label.

WGK (Water Danger/Protection)

CAS# 540-80-7: No information available.
CAS# 75-65-0: No information available.

Canada - DSL/NDSL

CAS# 75-65-0 is listed on Canada's DSL List.

Canada - WHMIS

not available.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 75-65-0 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 6/08/1998

Revision #11 Date: 3/22/2006

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.