

Material Safety Data Sheet

SECTION 1. CHEMICAL IDENTIFICATION

Product Name: Activation Solution (0.20M Benzylthio Tetrazole/Acetonitrle)
Chemical Name: 5-Benzyl Thio Tetrazole/Acetonitrile
Catalog Number: DN-3303-H
Synonym/Trade Name: Benzyl Thio Tetrazole Solution, Activator

Manufacturer or supplier's

SECTION 2. COMPOSITION, INFORMATION ON INGREDIENTS

Component: Acetonitrile
CAS#: 75-05-8
EC # (EINECS): N/A
M.W.: 41.05

Component: 5-(Benzylthio)-1H-tetrazole
CAS#: 21871-47-6
M.W.: 192.14

SECTION 3. HAZARDS IDENTIFICATION



NFPA Ratings (SCALE 0-4): Health=2 Fire=3 Reactivity=0

Emergency Overview

Physical Description: colorless liquid Odor: Sweet ether-like odor
Major Health Hazards: Respiratory tract irritation, eye irritation, blood damage.

Physical Hazards

Flammable liquid and vapor. Vapor may cause flash fire.

Potential Health Effects Inhalation:

Short Term Exposure: Irritation, nausea, stomach pain, loss of voice, chest pain, difficulty breathing, wheezing, headache, symptoms of drunkenness, disorientation, convulsions, coma.

Long Term Exposure: Lung damage, blood disorders.

Skin Contact:

Short Term Exposure: Irritation, absorption may occur, same as effects reported in Short term inhalation.

Long Term Exposure: Same as effects reported in short term inhalation.

Eye Contact:

Short Term Exposure: Irritation, tearing.

Long Term Exposure: Same as effects reported in short term exposure.

Ingestion:

Short Term Exposure: Same as effects reported in short term exposure. Bluish skin color.

Long Term Exposure: No information on significant adverse effects.

SECTION 4. FIRST AID MEASURES

Inhalation:

If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get professional medical assistance immediately.

Skin Contact:

Wash skin with soap and water for at least 15 minutes, while removing contaminated clothing and shoes. Get medical attention immediately. Thoroughly dry and clean contaminated clothing and shoes before reuse.

Eye Contact:

Immediately flush eyes with plenty of water or normal saline for at least 15 minutes. Then get medical attention immediately.

Ingestion:

If a large amount is swallowed. Get medical assistance immediately.

SECTION 5. FIRE FIGHTING MEASURES

Fire and Explosion Hazards:

Severe fire hazard. The vapor is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back. Vapor/air mixtures are explosive. Dry tetrazole is a severe explosion hazard when heated: avoid evaporation of product to dryness.

Extinguishing Media:

Alcohol resistant foam, carbon dioxide, regular dry chemical and water.

Fire Fighting:

Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks.

For fires in cargo or storage area:

Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this is impossible then take the following precautions: keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire.

Flood water spray. Do not scatter spilled material with high-pressure water streams. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

Flash Point: 43 F (6 °C) (OC, acetonitrile)

Lower Flammable Limit: 4.4% Upper

Flammable Limit: 16.0%

Flammability Class (OSHA): N/A

SECTION 6. ACCIDENTAL RELEASE MEASURES

Occupational Release:

Avoid heat, flames, sparks and other sources of ignition. Do not touch spilled material. Stop leaks if possible without personal risk. Reduce vapors with water spray. Do not get water inside container.

Small spills: absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. Notify local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S).

SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at 800-424-8802 (USA) or 202-426- 2675 (USA).

SECTION 7. HANDLING STORAGE

Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.106. Grounding and bonding required. See original container for storage recommendations. Keep separated from incompatible substances.

Dry tetrazole is a severe explosion hazard when heated: do not evaporate products to dryness: do not decant off liquid in the event of precipitation. If precipitation occurs, swirl at 20-25 C until dissolved.

SECTION 8. EXPOSURE CONTROLS, PERSONAL PROTECTION

Exposure limits

Acetonitrile:

40 ppm (70 mg/m³) OSHA TWA

40 ppm (67 mg/m³) ACGIH TWA

60 ppm (101 mg/m³) ACGIH STEL

20 ppm (34 mg/m³) NIOSH recommended TWA

Ventilation:

Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

Eye Protection:

Wear splash resistant safety goggles with a face shield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Clothing:

Wear appropriate chemical resistant clothing. Gloves: Wear appropriate chemical resistant gloves.

Respirator:

Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use.

Any chemical cartridge respirator with organic vapor cartridges.

Any chemical cartridge respirator with a full face piece and organic vapor cartridges. Any air-purifying respirator with a full face piece and an organic vapor canister. For Unknown Concentrations of Immediately Dangerous to Life of Health- other positive-pressure mode in combination with a separate escape supply. Any self- contained breathing apparatus with a full face piece.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

a) Appearance Form:	clear, liquid
b) Color:	colorless
c) Odor	pungent
d) Odor Threshold	No data available
e) pH	No data available
f) Melting point/freezing point	No data available
g) Initial boiling point and boiling range	81 - 82 °C at 1.013 hPa
h) Flash point	6 °C - closed cup - Solvent
i) Evaporation rate	No data available
j) Flammability (solid, gas)	No data available
k) Upper/lower flammability or explosive limits	No data available
l) Vapor pressure	No data available
m) Vapor density	No data available
n) Relative density	0.79 g/cm ³ at 25 °C
o) Water solubility	No data available
p) Partition coefficient: n-octanol/water	No data available
q) Autoignition temperature	No data available
r) Decomposition temperature	No data available
s) Viscosity	No data available
t) Explosive properties	No data available
u) Oxidizing properties	No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity: Stable at normal temperatures and pressure.

Conditions to Avoid:

Avoid heat, flames, sparks and other sources of ignition. Minimize contact with material. Avoid inhalation of material or combustion by-products. Keep out of water supplies and sewers. Dry tetrazole is a severe explosion hazard when heated: do not evaporate product to dryness; do not decant off liquid in the event of precipitation. If precipitation occurs, swirl at 20-25 C until dissolved.

Incompatibilities:

Acids, metals, bases, oxidizing materials, combustible materials, and reducing agents.

Hazardous Decomposition:

Thermal decomposition products: cyanides, oxides of carbon, oxides of nitrogen.

Polymerization:

Will not polymerize.

SECTION 11. TOXICOLOGICAL INFORMATION

Irrigation Data for Acetonitrile:

500mg open skin-rabbit mild; 100 ul/24 hours eyes-rabbit moderate. Toxicity Data for

Acetonitrile:

500 mg/kg oral-woman TDLo; 800 mg/kg oral-child TDLo; 571 mg/kg oral-man TDLo; 64 mg/kg oral-man TDLo; 160 ppm/4 hours inhalation-human TCLo; 2460 mg/kg oral- rat LD50; 7551 ppm/8 hours inhalation-rat LC50; 269 mg/kg oral-mouse LD50; 2693 ppm/1 hours inhalation-mouse LC50; 50 mg/kg oral-rabbit LD50; 2828 ppm/4 hours inhalation-rabbit LC50; > 2gm/kg skin-rabbit LD50.

Carcinogen Status: ACGIH: A4-Not classifiable as a Human Carcinogen. Local Effects: irritant: inhalation, eye.

Acute Toxicity Level:

Moderately Toxic: ingestion

Slightly Toxic: inhalation

Target Organs: Blood.

Medical Conditions Aggravated By Exposure:

Central nervous system disorders, heart or cardiovascular disorders, kidney disorders, liver disorders, skin disorders and allergies.

Additional:

Tumorigenic Data: 400 ppm inhalation-rat TLCo/6 hours – 2 year intermittent. Mutagenic Data: Sex chromosome loss and non disjunction – *Drosophila melanogaster* inhalation 131 ppm; sex chromosome loss and non disjunction – *Saccharomyces cerevisiae* 47600 ppm; sister chromatid exchange – hamster ovary 5gm/L Reproductive Effects Data: 1800 ppm inhalation-rat TCLo/6 hours 6-2 days pregnant female continuous; 390 mg/kg oral-rabbit TDLo 6-18 days pregnant female continuous. Toxicity Data for 1-Methylimidazole: 400-640 mg/kg skin-rabbit LD50 (BASF); 1400 mg/kg oral-mouse LD50.

Local Effects: corrosive: inhalation, skin, eye, ingestion.

Acute Toxicity Level: Toxic: Dermal absorption

Moderately Toxic: ingestion

SECTION 12. ECOLOGICAL INFORMATION

N/A

SECTION 13. DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste #: U003. Dry tetrazole is a severe explosion hazard when heated: prior to discarding empty product container, rinse with acetonitrile or water to eliminate any product residue, and collect rinse for proper disposal.

SECTION 14. TRANSPORT INFORMATION

LAND TRANSPORT (49CFR)

UN Number – UN1648, Class 3, Packing Group II
Proper Shipping Name: Acetonitrile Solution

Reportable Quantity (RQ) 5000 lbs

Marine Pollutant: No

Poison Inhalation Hazard (PIH): No

AIR TRANSPORT (ICAO/IATA)

UN Number – UN1648, Class 3, Packing Group II
Proper Shipping Name: Acetonitrile Solution

MARINE TRANSPORT (IMDG/IMO)

UN Number – UN1648, Class 3, Packing Group II,

EMS-No: F-E, S-D

Proper Shipping Name: Acetonitrile Solution

Marine Pollutant: No

SECTION 15. REGULATORY INFORMATION

U.S. Regulations: CERCLAA sections 102a/103 Hazardous substances (40 CFR 302.4):

Acetonitrile: 5000 LBS RQ

SARA Title III section 302 extremely hazardous substances (40 CFR 355.30) not regulated.

SARA Title III section 304 extremely hazardous substances (40 CFR 355.40) not regulated

SARA Title III section 311/312 extremely hazardous categories (40 CFR 370.21): Acute: Yes
Chronic: No Fire: Yes Reactive: No
Sudden Release: No

SARA Title III Section 313 (40 CFR 372.65): Acetonitrile OSHA Process safety (29 CFR 1910.119): Not regulated.

National Inventory Status: U.S. Inventory (TSCA): Not listed on inventory. This product is sold for Research and Development Use Only.

TSCA 12(b) Export Notification: Not listed.

SECTION 16. OTHER INFORMATION

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. ChemGenes India Pvt. Ltd. shall not be held liable for any damage resulting from handling or from contact with the above product.

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