Birch BIOTECH

Safety Data Sheet

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Tetrahydrofuran, Stabilized with BHT
SYNONYMS: THF, Diethylene oxide; Furanidine
PRODUCT CODES: 1917-5

MANUFACTURER: Birch Biotech, LLC
ADDRESS: 690 Stockton Drive, Exton, PA 19341

CHEMTREC PHONE: 800-424-9300
SUPPORT: 484-318-2754

PRODUCT USE: For experimental, research and industrial use
PREPARED BY: AA

SECTION 1 NOTES:

SECTION 2: HAZARDS IDENTIFICATION

GHS CLASSIFICATION: Flammable liquid Category 2, Serious eye damage/irritation Category 2A; Acute Toxicity, Oral Category 4, Specific Target Organ Toxicity – single exposure (Respiratory system, Central nervous system – CNS) Category 3; Carcinogenicity Category 2



Signal Word: Danger!

Hazard Phrases	
H225	Highly flammable liquid and vapor
H319	Causes serious eye irritation.
H302	Harmful if swallowed.
H336	May cause drowsiness or dizziness.
H335	May cause respiratory irritation.
H351	Suspected of causing cancer

Precautionary Phrases	
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions are read and understood
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.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
P270	Do not eat, drink or smoke when using this product.
P233	Keep container tightly closed.
P241	Use explosion-proof electrical/ventilating/lighting equipment.
P243	Take precautionary measures against static discharge.
P264	Wash hands thoroughly after handling.

P303+P361+P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with shower/water.
P301+P312	IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P403+P233	Store in a well- ventilated place. Keep container tightly closed.
P405	Store locked up.

SECTION 2 NOTES: Hazards not otherwise classified (HNOC) May form explosive peroxides WARNING. Cancer - https://www.p65warnings.ca.gov/.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT:	***CAS NO.***	***% VOL***
Tetrahydrofuran	109-99-9	>99%
Water	7732-18-5	0-1
2,6-di-tert-butyl-p-cresol	128-37-0	0.025

SECTION 3 NOTES:

SECTION 4: FIRST AID MEASURES

EYES: Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.

SKIN: In case of contact, flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. If skin irritation occurs: Get medical attention/advice.

INGESTION: Call medical doctor or poison control center immediately. Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

MOST IMPORTANT SYMPTOMS AND EFFECTS: Difficulty in breathing. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: Causes central nervous

SECTION 4 NOTES:
Note to Physician: Treat symptomatically

SECTION 5: FIRE-FIGHTING MEASURES

FLAMMABILITY OF THE PRODUCT: OSHA/NFPA Class IB Flammable Liquid
FLASH POINT: -21.5℃ (-6.7℉)
AUTOIGNITION TEMPERATURE: 321℃ (609.8℉)

NFPA HAZARD CLASSIFICATION
HEALTH:2 FLAMMABILITY: 3 REACTIVITY: 2
OTHER:

HMIS HAZARD CLASSIFICATION

HEALTH:2 FLAMMABILITY: 3 REACTIVITY: 2
PROTECTION: B

EXTINGUISHING MEDIA: Small fire – use DRY chemical powder, CO2, water spray or alcohol resistant foam. Large fire – use alcohol resistant foam, water spray or fog. Cool all affected containers with flooding quantities of water.
NOT SUITABLE: Do not use water jet.

SPECIAL FIRE FIGHTING PROCEDURES: Wear self-contained breathing apparatus and protective clothing to protect contact with skin and eyes. Containers may explode when heated. Keep unopened containers cool by spraying with water. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide, carbon dioxide, peroxides
UNUSUAL FIRE AND EXPLOSION HAZARDS: May produce a floating fire hazard. Vapors may travel to source of ignition and flash back. Vapors may settle on low or confined spaces.

SECTION 5 NOTES: Static ignition hazard can result from handling and use. Keep away from sparking tools.

SECTION 6: ACCIDENTAL RELEASE MEASURES

ACCIDENTAL RELEASE MEASURES:

Small spill and leak: Ensure adequate ventilation. Remove all sources of ignition. Dilute with water and mop or absorb with an inert dry material and place in appropriate waste disposal container.
Large spill and leak: Keep unauthorized people away, isolate hazard area and deny entry. Keep upwind of spill. Remove all sources of heat and ignition sources. Stop leak if without risk. Absorb with DRY earth, sand, or other non-combustible material. Avoid skin and eye contact. Prevent entry into sewers, basements or confined areas; dike if needed. Additional protective equipment such as full-face respirator, full body suit and boots may be required.

SECTION 6 NOTES:

SECTION 7: HANDLING AND STORAGE

HANDLING: Do not get in eyes or on skin. Do not breathe vapor or mist. If potential for splashing exists, protect skin by using sleeve protectors, aprons and face-shield. Immediately remove contaminated clothing. Wash thoroughly after handling.
STORAGE: Keep away from sources of ignition. Keep containers closed and out of reach of children. Ground all equipment containing material. Containers which are opened must be resealed and kept upright to prevent leakage. May form explosive peroxides on prolonged storage. Containers should be dated when opened and tested periodically for the presence of peroxides.

SECTION 7 NOTES:

SECTION 8: EXPOSURE CONTROL/PERSONAL PROTECTION

ENGINEERING CONTROLS: General mechanical ventilation or laboratory fume hood. Ensure that eyewash stations and quick drench showers are close to the workstation.
PERSONAL PROTECTIVE MEASURES: Wear gloves, lab coat, eye protection and impervious footwear. Approved/certified respirator if airborne concentrations exceed exposure limits
ENVIRONMENTAL EXPOSURE CONTROLS: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.
WORK HYGIENIC PRACTICES: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing.

EXPOSURE GUIDELINES:
OSHA Permissible Exposure Limits (PELs):

Reagent	***CAS#***	***OSHA PEL TWA***

Tetrahydrofuran	109-99-9	1000 ppm

ACGIH Threshold Limit values (TLVs):

Reagent	*CAS#*	*ACGIH PEL TWA*	*ACGIH STEL*
Tetrahydrofuran	109-99-9	50 ppm	100 ppm (skin)
2,6-di-tert-butyl-p-cresol	128-37-0	2 mg/m^3	

SECTION 8 NOTES:

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Clear, colorless
ODOR: sweet odor
PHYSICAL STATE: liquid
pH AS SUPPLIED: Not available
BOILING POINT: 65.4℃ (149.7℉)
MELTING POINT/FREEZING POINT: -108℃ (-162.4℉)
UPPER / LOWER FLAMMABILITY OR EXPLOSIVE LIMITS: 11.8/2.0%
VAPOR PRESSURE (mmHg): 19.3 kPa @20℃
VAPOR DENSITY (AIR = 1): 2.5
SPECIFIC GRAVITY: 0.889
EVAPORATION RATE: Specific data not available, expected to be rapid.
SOLUBILITY IN WATER: Completely miscible
MOLECULAR WEIGHT: 72.11 g/mol
VISCOSITY: Not established

SECTION 9 NOTES:

SECTION 10: STABILITY AND REACTIVITY

STABILITY: Product is stable under normal conditions of use.
CONDITIONS TO AVOID (STABILITY): Avoid heat, sparks, flames, and all other sources of ignition. Exposure to moist air or water.
INCOMPATIBILITY (MATERIAL TO AVOID): Strong oxidizing agents, Acids
HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: Vapors may form explosive mixture with air. Thermal breakdown of this product during fire or very high heat conditions may evolve the following decomposition products: oxides of carbon.
HAZARDOUS POLYMERIZATION: Hazardous polymerization may occur.
CONDITIONS TO AVOID: Heat, open flame

SECTION 10 NOTES:

SECTION 11: TOXICOLOGICAL INFORMATION

ACUTE TOXICITY:

Oral LD50:

Tetrahydrofuran: Rat LD50 2.3 ml/kg ~ 3.6 ml/kg (ECHA)
2,6-di-tert-butyl-p-cresol: Rat LD50 >6000 mg/kg (OECD TG 401, GLP)

Inhalation LC50:

Tetrahydrofuran: LC50 >14.7 mg/L 6 hr Rat (US EPA, GLP)
2,6-di-tert-butyl-p-cresol: Dust LC50 >2 mg/L 4 hr Rat (mouse LC50 ≤0.05 mg/L)

Dermal LD50:

Tetrahydrofuran: LD50 >2000 mg/kg Rat (OECD TG 402) (ECHA)
2,6-di-tert-butyl-p-cresol: LD50 >2000 mg/kg Rabbit (OECD TG 402, GLP)

Eye corrosion/irritation: Not available
Skin corrosion/irritation: Not available
Carcinogenicity:

Tetrahydrofuran:
ACGIH: A3 NTP: Not listed IARC: Group 2B
2,6-di-tert-butyl-p-cresol:
ACGIH: Not listed NTP: Not listed IARC: Not listed
Aspiration hazard: no data available
Potential health effects

Inhalation: Harmful if inhaled. Causes respiratory tract irritation.
Ingestion: Harmful if swallowed.
Skin: Harmful if absorbed through skin. Causes skin irritation.
Eyes: Causes eye irritation.
Signs and Symptoms of Exposure
May cause damage to organs, central nervous system depression

ROUTES OF ENTRY: Skin/eye contact, inhalation, and ingestion.
TARGET ORGANS: Respiratory system, Central nervous system
SECTION 11 NOTES:

SECTION 12: ECOLOGICAL INFORMATION

ECOLOGICAL TOXICITY:
Acute Fish Toxicity:
Tetrahydrofuran: LC50 2,160 mg/L 96 hr Pimephales promelas (ECHA)
2,6-di-tert-butyl-p-cresol: EC50 >0.57 mg/L 96 hr Other (Danio rerio, semi still water culture, EU method C. 1, GLP)

Crustaceans:
Tetrahydrofuran: LC50 3,485 mg/L 96 hr Daphnia magna (ECHA)
2,6-di-tert-butyl-p-cresol: LC50 0.48 mg/L 48 hr Daphnia magna (Still water culture, OECD TG 202, GLP) (ECHA)

PERSISTANCE AND DEGRADABILITY:
Tetrahydrofuran: log Pow 0.45 (ECHA)
2,6-di-tert-butyl-p-cresol: log Pow 5.03 (Estimate)
BIOACCUMULATIVE POTENTIAL: Bioaccumulation is unlikely.
MOBILITY IN SOIL: Tetrahydrofuran: Koc 18.33 ~ 23.32 (ECHA)

SECTION 12 NOTES:

SECTION 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Unused product: dispose as a regulated hazardous waste. Burn in a chemical incinerator equipped with an afterburner and scrubber. Take extra care in lighting as this material is highly flammable. Spent product or spill clean up- follow all provincial, local, state, and federal regulations.

SECTION 13 NOTES:

SECTION 14: TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION:
UN No. UN2056
Proper Shipping Name: TETRAHYDROFURAN
Hazard Class:3
Packing Group: II
Label Statement: Flammable liquid

IMDG

UN No. UN2056
Proper Shipping Name: TETRAHYDROFURAN
Hazard Class:3
Packing Group: II
EMS-No: F-E, S-D
Marine pollutant: No

IATA
UN No. UN2056
Proper Shipping Name: TETRAHYDROFURAN
Hazard Class: 3
Packing Group: II

SECTION 15: REGULATORY INFORMATION

United States

HCS Classification: Flammable liquid, Target organ effects, Irritant

U.S. Federal regulations:

TSCA 8(a) IUR: Listed on inventory.

United States inventory (TSCA 8b): Listed on inventory.

SARA 302/304/311/312 extremely hazardous substances: No products were found.

SARA 302/304 emergency planning and notification: No products were found.

SARA 302/304/311/312 hazardous chemicals: No products were found.

SARA 311/312 MSDS distribution - chemical inventory - hazard identification:
Acute Health Hazard, Fire Hazard

SARA 313 Form R – Reporting: The following components are subject to reporting levels established by SARA Title III, Section 313: None

DEA List I & II Chemicals
(Precursor Chemicals): Not Listed

CERCLA: This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) Tetrahydrofuran: CAS#109-99-9, 1000 LBS

RTK STATES: Tetrahydrofuran: CAS#109-99-9 MA, PA, NJ, RI 2,6-di-tert-butyl-p-cresol: CAS#128-37-0 MA, PA, NJ, RI

California Prop. 65
This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

CANADA

WHMIS (Canada): Class D-2B: Toxic material causing other toxic effects
Class B-2: Flammable liquid

Canadian lists: ***CEPA Toxic substances:*** The following components are listed: None
Canadian ARET: None of the components are listed.
Canadian NPRI: The following components are listed: None

CEPA DSL / CEPA NDSL: Tetrahydrofuran: CAS#109-99-9; 2,6-di-tert-butyl-p-cresol: CAS#128-37-0 Listed
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

International regulations

International lists: (***EINESC):*** This product is on the European Inventory of Existing Commercial Chemical Substances.

SECTION 16: OTHER INFORMATION

National Fire Protection Association (NFPA)



DISCLAIMER: This Safety Data Sheet has been prepared in accordance with the Globally Harmonized System for the Classification and Labelling of Chemicals (GHS). To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier nor any of its subsidiaries makes any warranty of merchantability or any other warranty, expressed or implied, which respect to such information, and we assume no liability resulting from its use. In no event shall Birch Biotech, LLC 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 resulting from use of or reliance upon this information.

PREPARATION INFORMATION: Prepared 10/15/2025, Rev. 2