

**1. Identification**

|   |   |                 |
|---|---|-----------------|
| <b>Product identifier</b>                                     | <b>2,4,5-T butoxyethyl ester</b>                          |                 |
| <b>Other means of identification</b>                          |   |                 |
| <b>Item</b>   | N-10648   |                 |
| <b>Recommended use</b>  | For Laboratory Use Only                                   |                 |
| <b>Recommended restrictions</b>                               | None known.   |                 |
| <b>Manufacturer/Importer/Supplier/Distributor information</b> |   |                 |
| <b>Manufacturer</b>   |   |                 |
| <b>Company name</b>   | Chem Service, Inc.  |                 |
| <b>Address</b>  | 660 Tower Lane<br>West Chester, PA 19380<br>United States |                 |
| <b>Telephone</b>  | Toll Free   | 800-452-9994    |
|   | Direct  | 610-692-3026    |
| <b>Website</b>  | www.chemservice.com                                       |                 |
| <b>E-mail</b>   | info@chemservice.com                                      |                 |
| <b>Emergency phone number</b>                                 | Chemtrec US   | 800-424-9300    |
|   | Chemtrec outside US                                       | +1 703-527-3887 |

**2. Hazard(s) identification**

|                              |  |   |
|------------------------------|--|---|
| <b>Physical hazards</b>      | Not classified.  |   |
| <b>Health hazards</b>        | Acute toxicity, oral                                   | Category 4                              |
|                              | Skin corrosion/irritation                              | Category 2                              |
|                              | Serious eye damage/eye irritation                      | Category 2                              |
|                              | Specific target organ toxicity, single exposure        | Category 3 respiratory tract irritation |
| <b>Environmental hazards</b> | Hazardous to the aquatic environment, acute hazard     | Category 1                              |
|                              | Hazardous to the aquatic environment, long-term hazard | Category 1                              |
| <b>OSHA defined hazards</b>  | Not classified.  |   |
| <b>Label elements</b>        |  |   |



|                                |   |
|--------------------------------|---|
| <b>Signal word</b>             | Warning   |
| <b>Hazard statement</b>        | Harmful if swallowed. Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation. Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.  |
| <b>Precautionary statement</b> |   |
| <b>Prevention</b>              | Wear eye/face protection. Avoid breathing mist or vapor. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Wear protective gloves.  |
| <b>Response</b>                | If swallowed: Call a poison center/doctor if you feel unwell. If on skin: Wash with plenty of water. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a poison center/doctor if you feel unwell. Specific treatment (see this label). Rinse mouth. If skin irritation occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash before reuse. Collect spillage. |
| <b>Storage</b>                 | Store in a well-ventilated place. Keep container tightly closed. Store locked up.   |
| <b>Disposal</b>                | Dispose of contents/container in accordance with local/regional/national/international regulations.   |

|  |                 |
|--|-----------------|
| <b>Hazard(s) not otherwise classified (HNOC)</b> | None known.     |
| <b>Supplemental information</b>                  | Not applicable. |

### 3. Composition/information on ingredients

#### Substances

| Chemical name             | Common name and synonyms | CAS number | %   |
|---------------------------|--------------------------|------------|-----|
| 2,4,5-T butoxyethyl ester |                          | 2545-59-7  | 100 |

\*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

### 4. First-aid measures

|   |  |
|---|--|
| <b>Inhalation</b>   | Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.  |
| <b>Skin contact</b>   | Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash before reuse.   |
| <b>Eye contact</b>  | Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.                              |
| <b>Ingestion</b>  | Rinse mouth. IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.  |
| <b>Most important symptoms/effects, acute and delayed</b>                     | Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain.  |
| <b>Indication of immediate medical attention and special treatment needed</b> | Provide general supportive measures and treat symptomatically. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.  |
| <b>General information</b>  | In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. |

### 5. Fire-fighting measures

|  |   |
|--|---|
| <b>Suitable extinguishing media</b>                                  | Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).                                   |
| <b>Unsuitable extinguishing media</b>                                | Do not use water jet as an extinguisher, as this will spread the fire.                        |
| <b>Specific hazards arising from the chemical</b>                    | During fire, gases hazardous to health may be formed.   |
| <b>Special protective equipment and precautions for firefighters</b> | Self-contained breathing apparatus and full protective clothing must be worn in case of fire. |
| <b>Fire fighting equipment/instructions</b>                          | Move containers from fire area if you can do so without risk.                                 |
| <b>Specific methods</b>  | Use standard firefighting procedures and consider the hazards of other involved materials.    |
| <b>General fire hazards</b>  | No unusual fire or explosion hazards noted.   |

### 6. Accidental release measures

|  |  |
|--|--|
| <b>Personal precautions, protective equipment and emergency procedures</b> | Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate protective equipment and clothing during clean-up. Avoid inhalation of vapors or mists. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.   |
| <b>Methods and materials for containment and cleaning up</b>               | <p>This material is classified as a water pollutant under the Clean Water Act and should be prevented from contaminating soil or from entering sewage and drainage systems which lead to waterways.</p> <p>Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.</p> <p>Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.</p> <p>Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.</p> |

**Environmental precautions** Avoid release to the environment. Contact local authorities in case of spillage to drain/aquatic environment. Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground.

## 7. Handling and storage

**Precautions for safe handling** Do not taste or swallow. Avoid breathing mist or vapor. Avoid contact with skin. Avoid contact with eyes. Avoid contact with clothing. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. When using, do not eat, drink or smoke. Wash hands thoroughly after handling. Avoid release to the environment. Do not empty into drains.

**Conditions for safe storage, including any incompatibilities** Store locked up. Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

## 8. Exposure controls/personal protection

**Occupational exposure limits** No exposure limits noted for ingredient(s).

**Biological limit values** No biological exposure limits noted for the ingredient(s).

**Appropriate engineering controls** Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

### Individual protection measures, such as personal protective equipment

**Eye/face protection** Wear safety glasses with side shields (or goggles).

#### Skin protection

**Hand protection** Wear appropriate chemical resistant gloves.

#### Other

Wear appropriate chemical resistant clothing.

**Respiratory protection** In case of insufficient ventilation, wear suitable respiratory equipment.

**Thermal hazards** Wear appropriate thermal protective clothing, when necessary.

**General hygiene considerations** When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

## 9. Physical and chemical properties

### Appearance

**Physical state** Liquid.

**Form** Liquid

**Color** Colorless

**Odor** Not available.

**Odor threshold** Not available.

**pH** Not available.

**Melting point/freezing point** Not available.

**Initial boiling point and boiling range** Not available.

**Flash point** 265.0 - 420.0 °F (129.4 - 215.6 °C) Open Cup

**Evaporation rate** Not available.

**Flammability (solid, gas)** Not available.

### Upper/lower flammability or explosive limits

**Flammability limit - lower (%)** Not available.

**Flammability limit - upper (%)** Not available.

**Explosive limit - lower (%)** Not available.

**Explosive limit - upper (%)** Not available.

**Vapor pressure** 0.000002 kPa at 25 °C

**Vapor density** Not available.

**Relative density** Not available.

|  |                            |
|--|----------------------------|
| <b>Solubility(ies)</b>                         |                            |
| <b>Solubility (water)</b>                      | Not available.             |
| <b>Partition coefficient (n-octanol/water)</b> | 5.32                       |
| <b>Auto-ignition temperature</b>               | Not available.             |
| <b>Decomposition temperature</b>               | Not available.             |
| <b>Viscosity</b>                               | Not available.             |
| <b>Other information</b>                       |                            |
| <b>Flammability class</b>                      | Combustible IIIB estimated |
| <b>Molecular formula</b>                       | C14-H17-Cl3-O4             |
| <b>Molecular weight</b>                        | 355.66 g/mol               |

## 10. Stability and reactivity

|   |   |
|---|---|
| <b>Reactivity</b>                         | The product is stable and non-reactive under normal conditions of use, storage and transport. |
| <b>Chemical stability</b>                 | Material is stable under normal conditions.   |
| <b>Possibility of hazardous reactions</b> | Hazardous polymerization does not occur.  |
| <b>Conditions to avoid</b>                | Avoid temperatures exceeding the flash point. Contact with incompatible materials.            |
| <b>Incompatible materials</b>             | Peroxides. Phenols.   |
| <b>Hazardous decomposition products</b>   | No hazardous decomposition products are known.  |

## 11. Toxicological information

### Information on likely routes of exposure

|                     |   |
|---------------------|---|
| <b>Inhalation</b>   | May cause irritation to the respiratory system. |
| <b>Skin contact</b> | Causes skin irritation.                         |
| <b>Eye contact</b>  | Causes serious eye irritation.                  |
| <b>Ingestion</b>    | Harmful if swallowed.                           |

**Symptoms related to the physical, chemical and toxicological characteristics** Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain.

### Information on toxicological effects

|  |   |
|--|---|
| <b>Acute toxicity</b>                    | Harmful if swallowed. May cause respiratory irritation. |
| <b>Skin corrosion/irritation</b>         | Causes skin irritation.                                 |
| <b>Serious eye damage/eye irritation</b> | Causes serious eye irritation.                          |

### Respiratory or skin sensitization

|                                  |   |
|----------------------------------|---|
| <b>Respiratory sensitization</b> | Not available.  |
| <b>Skin sensitization</b>        | This product is not expected to cause skin sensitization. |

**Germ cell mutagenicity** No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

**Carcinogenicity** This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

### US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

**Reproductive toxicity** This product is not expected to cause reproductive or developmental effects.

**Specific target organ toxicity - single exposure** Respiratory tract irritation.

**Specific target organ toxicity - repeated exposure** Not classified.

**Aspiration hazard** Not available.

## 12. Ecological information

**Ecotoxicity** Very toxic to aquatic life with long lasting effects. Accumulation in aquatic organisms is expected.

| Product                                   | Species | Test Results   |
|---|---------|--|
| 2,4,5-T butoxyethyl ester (CAS 2545-59-7) |         |  |
| <b>Aquatic</b>                            |         |  |
| Fish                                      | LC50    | Rainbow trout,donaldson trout<br>(Oncorhynchus mykiss) |
|   |         | 0.93 mg/l, 96 hours                                    |

\* Estimates for product may be based on additional component data not shown.

**Persistence and degradability** No data is available on the degradability of this product.

**Bioaccumulative potential** Not available.

**Partition coefficient n-octanol / water (log Kow)**

5.32

**Mobility in soil** No data available.

**Other adverse effects** No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

### 13. Disposal considerations

**Disposal instructions** Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

**Local disposal regulations** Dispose in accordance with all applicable regulations.

**Hazardous waste code** The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

**Waste from residues / unused products** Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

**Contaminated packaging** Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

### 14. Transport information

#### DOT

**UN number** UN2810  
**UN proper shipping name** Toxic, liquids, organic, n.o.s.  
**Transport hazard class(es)**  
**Class** 6.1(PGIII)  
**Subsidiary risk** -  
**Label(s)** 6.1  
**Packing group** III  
**Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.  
**Special provisions** IB3, T7, TP1, TP28  
**Packaging exceptions** 153  
**Packaging non bulk** 203  
**Packaging bulk** 241

#### IATA

**UN number** UN2810  
**UN proper shipping name** Toxic liquid, organic, n.o.s.  
**Transport hazard class(es)**  
**Class** 6.1(PGIII)  
**Subsidiary risk** -  
**Packing group** III  
**Environmental hazards** No.  
**ERG Code** 6L  
**Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.  
**Other information**  
**Passenger and cargo aircraft** Allowed.  
**Cargo aircraft only** Allowed.

**IMDG**

|   |   |
|---|---|
| <b>UN number</b>  | UN2810  |
| <b>UN proper shipping name</b>  | TOXIC LIQUID, ORGANIC, N.O.S.   |
| <b>Transport hazard class(es)</b>   |   |
| <b>Class</b>  | 6.1(PGIII)  |
| <b>Subsidiary risk</b>  | -   |
| <b>Packing group</b>  | III   |
| <b>Environmental hazards</b>  |   |
| <b>Marine pollutant</b>   | No.   |
| <b>EmS</b>  | F-A, S-A  |
| <b>Special precautions for user</b>   | Read safety instructions, SDS and emergency procedures before handling. |
| <b>Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code</b> | Not available.  |

**DOT****IATA; IMDG**

**General information** DOT Regulated Marine Pollutant. IMDG Regulated Marine Pollutant.

**15. Regulatory information**

**US federal regulations** This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.  
One or more components are not listed on TSCA.

**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**

Not regulated.

**CERCLA Hazardous Substance List (40 CFR 302.4)**

2,4,5-T butoxyethyl ester (CAS 2545-59-7) Listed.

**SARA 304 Emergency release notification**

Not regulated.

**US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)**

Not listed.

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

**Hazard categories** Immediate Hazard - Yes  
Delayed Hazard - No  
Fire Hazard - No  
Pressure Hazard - No  
Reactivity Hazard - No

**SARA 302 Extremely hazardous substance**

Not listed.

SARA 311/312 Hazardous chemical Yes

SARA 313 (TRI reporting)

| Chemical name             | CAS number | % by wt. |
|---------------------------|------------|----------|
| 2,4,5-T butoxyethyl ester | 2545-59-7  | 100      |

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

2,4,5-T butoxyethyl ester (CAS 2545-59-7)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Clean Water Act (CWA) Section 112(r) (40 CFR 68.130) Hazardous substance

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations

US - New Jersey RTK - Substances: Listed substance

2,4,5-T butoxyethyl ester (CAS 2545-59-7)

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Not listed.

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

2,4,5-T butoxyethyl ester (CAS 2545-59-7)

US. Massachusetts RTK - Substance List

2,4,5-T butoxyethyl ester (CAS 2545-59-7)

US. New Jersey Worker and Community Right-to-Know Act

2,4,5-T butoxyethyl ester (CAS 2545-59-7)

US. Pennsylvania RTK - Hazardous Substances

2,4,5-T butoxyethyl ester (CAS 2545-59-7)

US. Pennsylvania Worker and Community Right-to-Know Law

2,4,5-T butoxyethyl ester (CAS 2545-59-7)

US. Rhode Island RTK

2,4,5-T butoxyethyl ester (CAS 2545-59-7)

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

International Inventories

| Country(s) or region        | Inventory name   | On inventory (yes/no)* |
|-----------------------------|--|------------------------|
| Australia                   | Australian Inventory of Chemical Substances (AICS)                     | Yes                    |
| Canada                      | Domestic Substances List (DSL)   | No                     |
| Canada                      | Non-Domestic Substances List (NDSL)                                    | No                     |
| China                       | Inventory of Existing Chemical Substances in China (IECSC)             | No                     |
| Europe                      | European Inventory of Existing Commercial Chemical Substances (EINECS) | Yes                    |
| Europe                      | European List of Notified Chemical Substances (ELINCS)                 | No                     |
| Japan                       | Inventory of Existing and New Chemical Substances (ENCS)               | No                     |
| Korea                       | Existing Chemicals List (ECL)  | No                     |
| New Zealand                 | New Zealand Inventory  | No                     |
| Philippines                 | Philippine Inventory of Chemicals and Chemical Substances (PICCS)      | No                     |
| United States & Puerto Rico | Toxic Substances Control Act (TSCA) Inventory                          | No                     |

\*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

## 16. Other information, including date of preparation or last revision

**Issue date** 05-19-2015  
**Version #** 01  
**NFPA ratings** Health: 2  
Flammability: 0  
Instability: 0

### Disclaimer

The above information is believed to be correct on the date it was last revised and must not be considered all inclusive. The information has been obtained only by a search of available literature and is only a guide for handling the chemicals. OSHA regulations require that if other hazards become evident, an upgraded SDS must be made available to the employee within three months. RESPONSIBILITY for updates lies with the employer and not with CHEM SERVICE, Inc.

Persons not specifically and properly trained should not handle this chemical or its container. This product is furnished FOR LABORATORY USE ONLY! Our products may NOT BE USED as drugs, cosmetics, agricultural or pesticide products, food additives or as household chemicals.

This Safety Data Sheet (SDS) is intended only for use with Chem Service, Inc. products and should not be relied on for use with materials from any other supplier even if the chemical name(s) on the product are identical! Whenever using an SDS for a solution or mixture the user should refer to the SDS for every component of the solution or mixture. Chem Service warrants that this SDS is based upon the most current information available to Chem Service at the time it was last revised. THIS WARRANTY IS EXCLUSIVE, AND CHEM SERVICE, INC. MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. This SDS is provided gratis and CHEM SERVICE, INC. SHALL NOT BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR CONTINGENT DAMAGES.

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