Section 1 - Chemical Product and Company Identification

MSDS Name: EZ-RUN Protein Markers and Ladders


Synonyms: None Known.

Company Identification: Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410

For information in the US, call: 201-796-7100
Emergency Number US: 201-796-7100
CHEMTREC Phone Number, US: 800-424-9300

Section 2 - Composition, Information on Ingredients

Risk Phrases:

CAS#: 56-81-5
Chemical Name: Glycerol
%: <51
EINECS#: 200-289-5

Risk Phrases:

CAS#: 77-86-1
Chemical Name: Tris (hydroxymethyl) aminomethane
%: 1-3
EINECS#: 201-064-4

Risk Phrases:

CAS#: 151-21-3
Chemical Name: Sodium lauryl sulfate
%: 2.0
EINECS#: 205-788-1

Risk Phrases:

CAS#: 3483-12-3
Chemical Name: Dithiothreitol
%: <0.76
EINECS#: 222-468-7
<table>
<thead>
<tr>
<th>Risk Phrases:</th>
<th>CAS#</th>
<th>Chemical Name</th>
<th>%</th>
<th>EINECS#</th>
<th>Hazard Symbols</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Ethylenediaminetetraacetwe, disodium, dihydrate</td>
<td>&lt;0.05</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>unlisted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk Phrases: 34 37</td>
<td>7647-01-0</td>
<td>Hydrogen chloride</td>
<td>&lt;1.0</td>
<td>231-595-7</td>
<td>C</td>
</tr>
<tr>
<td>Risk Phrases:</td>
<td>7647-14-5</td>
<td>Sodium chloride</td>
<td>&lt;0.177</td>
<td>231-598-3</td>
<td></td>
</tr>
<tr>
<td>Risk Phrases:</td>
<td>7664-38-2</td>
<td>Phosphoric acid</td>
<td>&lt;1.4</td>
<td>231-633-2</td>
<td>C</td>
</tr>
<tr>
<td>Risk Phrases:</td>
<td>26628-22-8</td>
<td>Sodium azide</td>
<td>&lt;0.02</td>
<td>247-852-1</td>
<td></td>
</tr>
<tr>
<td>Risk Phrases:</td>
<td>62625-28-9</td>
<td>Bromophenol blue</td>
<td>0.01</td>
<td>263-653-2</td>
<td></td>
</tr>
</tbody>
</table>
Warning! Irritant. Harmful if swallowed. May cause allergic respiratory and skin reaction. Causes eye, skin, and respiratory tract irritation. Target Organs: Respiratory system, eyes, skin.

Potential Health Effects

Eye: Causes eye irritation. May cause chemical conjunctivitis.

Skin: Causes mild skin irritation. Allergic reactions have been reported.

Ingestion: Harmful if swallowed. May cause gastrointestinal irritation with nausea, vomiting and diarrhea.

Inhalation: Causes respiratory tract irritation. May cause allergic respiratory reaction.

Chronic: No information found.

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.

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

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. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or appropriate foam.

Explosion Limits:

<table>
<thead>
<tr>
<th>Limit</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower</td>
<td>Not available</td>
</tr>
<tr>
<td>Upper</td>
<td>Not available</td>
</tr>
</tbody>
</table>

Autoignition Temperature: Not available

Flash Point: Not available

NFPA Rating: health: 2; flammability: 0; 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. Provide ventilation.

Section 7 - Handling and Storage

Handling: Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Avoid ingestion and inhalation. Use with adequate ventilation. Wash clothing before reuse.
Storage: Store in a tightly closed container. Store at -20°C.

Section 8 - Exposure Controls, Personal Protection

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>NIOSH</th>
<th>OSHA - Final PELs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerol</td>
<td>10 mg/m3 (mist)</td>
<td>none listed</td>
<td>15 mg/m3 TWA (total); 5 mg/m3 TWA (respirable fraction)</td>
</tr>
<tr>
<td>Tris (hydroxymethyl)aminomethane</td>
<td>none listed</td>
<td>none listed</td>
<td>none listed</td>
</tr>
<tr>
<td>Sodium lauryl sulfate</td>
<td>none listed</td>
<td>none listed</td>
<td>none listed</td>
</tr>
<tr>
<td>Dithiothreitol</td>
<td>none listed</td>
<td>none listed</td>
<td>none listed</td>
</tr>
<tr>
<td>Ethylenediaminetetraacetate, disodium, dihydrate</td>
<td>none listed</td>
<td>none listed</td>
<td>none listed</td>
</tr>
<tr>
<td>Hydrogen chloride</td>
<td>2 ppm Ceiling</td>
<td>50 ppm IDLH</td>
<td>5 ppm Ceiling; 7 mg/m3 Ceiling</td>
</tr>
<tr>
<td>Sodium chloride</td>
<td>none listed</td>
<td>none listed</td>
<td>none listed</td>
</tr>
<tr>
<td>Phosphoric acid</td>
<td>1 mg/m3; 3 mg/m3 TWA 1000</td>
<td>1 mg/m3 TWA</td>
<td>STEL</td>
</tr>
<tr>
<td>Sodium azide</td>
<td>0.29 mg/m3</td>
<td>none listed</td>
<td>none listed</td>
</tr>
<tr>
<td></td>
<td>Ceiling (as NaN3); 0.11 ppm</td>
<td></td>
<td>Ceiling (vapor, as hydrazoic acid)</td>
</tr>
<tr>
<td>Bromophenol blue</td>
<td>none listed</td>
<td>none listed</td>
<td>none listed</td>
</tr>
</tbody>
</table>

OSHA Vacated PELs: Glycerol: 10 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction) Tris (hydroxymethyl) aminomethane: None listed Sodium lauryl sulfate: None listed Dithiothreitol: None listed Ethylenediaminetetraacetate, disodium, dihydrate: None listed Hydrogen chloride: None listed Sodium chloride: None listed Phosphoric acid: 1 mg/m3 TWA Sodium azide: None listed Bromophenol blue: None listed

Engineering Controls:
Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Exposure Limits

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
Color: blue
Odor: odorless
pH: 7.5-8.0
Vapor Pressure: Not available
Vapor Density: Not available
Evaporation Rate: Not available
Viscosity: Not available
Boiling Point: Not available
Freezing/Melting Point: Not available
Decomposition Temperature: Not available
Solubility in water: Not available
Specific Gravity/Density:
Molecular Formula: Solution
Molecular Weight: 0

Section 10 - Stability and Reactivity

Chemical Stability: Stable at room temperature in closed containers under normal storage and handling conditions.

Conditions to Avoid: Excess heat.

Incompatibilities with Other Materials: Strong oxidizing agents.

Hazardous Decomposition Products: No data available.

Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#: 
CAS# 56-81-5: MA8050000
CAS# 77-86-1: TY2900000
CAS# 151-21-3: WT1050000
CAS# 3483-12-3: EK1610000
CAS# 6381-92-6: AH4410000
CAS# 7647-01-0: MW4025000 MW4031000
CAS# 7647-14-5: VZ4725000
CAS# 7664-38-2: TB6300000
CAS# 26628-22-8: VY8050000
CAS# 62625-28-9: None listed

RTECS:
CAS# 56-81-5: Draize test, rabbit, eye: 126 mg Mild; Draize test, rabbit, eye: 500 mg/24H Mild; Draize test, rabbit, skin: 500 mg/24H Mild; Inhalation, rat: LC50 = >570 mg/m3/1H; Oral, mouse: LD50 = 4090 mg/kg; Oral, rabbit: LD50 = 27 gm/kg; Oral, rat: LD50 = 12600 mg/kg; Skin, rabbit: LD50 = >10 gm/kg;

RTECS:
CAS# 77-86-1: Oral, rat: LD50 = 5900 mg/kg;

RTECS:
CAS# 151-21-3: Draize test, rabbit, eye: 100 mg/24H Moderate; Draize test, rabbit, eye: 250 ug Mild; Draize test, rabbit, eye: 2 mg; Draize test, rabbit, eye: 10 mg Moderate; Draize test, rabbit, skin: 50 mg/24H Severe; Draize test, rabbit, skin: 25 mg/24H Moderate; Draize test, rabbit, skin: 250 mg/24H Moderate; Draize test, rabbit, skin: 10 mg/24H; Draize test, rabbit, skin: 50 mg/24H Mild; Inhalation, rat: LC50 = >3900 mg/m3/1H; Oral, rat: LD50 = 1288 mg/kg;
LD50/LC50:

Inhalation, mouse: LC50 = 1108 ppm/1H;
Inhalation, mouse: LC50 = 20487 mg/m3/5M;
Inhalation, mouse: LC50 = 3940 mg/m3/30M;
Inhalation, rat: LC50 = 3124 ppm/1H;
Inhalation, rat: LC50 = 60938 mg/m3/5M;
Inhalation, rat: LC50 = 7004 mg/m3/30M;
Inhalation, rat: LC50 = 8300 mg/m3/30M;
Oral, rabbit: LD50 = 900 mg/kg;

Inhalation, rat: LC50 = >42 gm/m3/1H;
Oral, mouse: LD50 = 4 gm/kg;
Oral, rat: LD50 = 3000 mg/kg;
Skin, rabbit: LD50 = >10 gm/kg;

Inhalation, rat: LC50 = 25.5 mg/m3;
Oral, mouse: LD50 = 27 mg/kg;
Oral, rat: LD50 = 27 mg/kg;
Skin, rabbit: LD50 = 20 mg/kg;

Carcinogenicity:

Glycerol - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.
Tris (hydroxymethyl) aminomethane - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.
Sodium lauryl sulfate - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.
Dithiothreitol - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.
Ethylenediaminetetraacetatwe, disodium, dihydrate - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.

Hydrogen chloride - IARC: Group 3 (not classifiable)
Sodium chloride - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.
Phosphoric acid - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.
Sodium azide - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.
Bromophenol blue - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.

Other: The toxicological properties have not been fully investigated.

Section 12 - Ecological Information
Not available

Section 13 - Disposal Considerations
Dispose of in a manner consistent with federal, state, and local regulations.

Section 14 - Transport Information

US DOT
Shipping Name: Not regulated.
Hazard Class:
UN Number:
Packing Group:

Canada TDG
Shipping Name: Not regulated as a hazardous material
Hazard Class:
UN Number:
Packing Group:

USA RQ: CAS# 7647-01-0: 5000 lb final RQ; 2270 kg final RQ
USA RQ: CAS# 7664-38-2: 5000 lb final RQ; 2270 kg final RQ
USA RQ: CAS# 26628-22-8: 1000 lb final RQ; 454 kg final RQ

Section 15 - Regulatory Information

European/International Regulations

European Labeling in Accordance with EC Directives
Hazard Symbols: XN
Risk Phrases:
R 22 Harmful if swallowed.
R 36/37/38 Irritating to eyes, respiratory system and skin.

Safety Phrases:
S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

WGK (Water Danger/Protection)
CAS# 56-81-5: 0
CAS# 77-86-1: 1
CAS# 151-21-3: 2
CAS# 3483-12-3: Not available
CAS# 6381-92-6: 2
CAS# 7647-01-0: 1
CAS# 7647-14-5: 0
CAS# 7664-38-2: 1
CAS# 26628-22-8: 2
CAS# 62625-28-9: Not available

Canada
CAS# 56-81-5 is listed on Canada's DSL List
CAS# 77-86-1 is listed on Canada's DSL List
CAS# 151-21-3 is listed on Canada's DSL List
CAS# 3483-12-3 is listed on Canada's DSL List
CAS# 6381-92-6 is listed on Canada's DSL List
CAS# 7647-01-0 is listed on Canada's DSL List
CAS# 7647-14-5 is listed on Canada's DSL List
CAS# 7664-38-2 is listed on Canada's DSL List
CAS# 26628-22-8 is listed on Canada's DSL List
CAS# 62625-28-9 is listed on Canada's DSL List
Canadian WHMIS Classifications: D2B, D1B
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.
CAS# 56-81-5 is not listed on Canada's Ingredient Disclosure List.
CAS# 77-86-1 is not listed on Canada's Ingredient Disclosure List.
CAS# 151-21-3 is listed on Canada's Ingredient Disclosure List
CAS# 3483-12-3 is not listed on Canada's Ingredient Disclosure List.
CAS# 6381-92-6 is not listed on Canada's Ingredient Disclosure List.
CAS# 7647-01-0 is listed on Canada's Ingredient Disclosure List
CAS# 7647-14-5 is not listed on Canada's Ingredient Disclosure List.
CAS# 7664-38-2 is listed on Canada's Ingredient Disclosure List
CAS# 26628-22-8 is listed on Canada's Ingredient Disclosure List
CAS# 62625-28-9 is not listed on Canada's Ingredient Disclosure List.

US Federal
TSCA
CAS# 56-81-5 is listed on the TSCA Inventory.
CAS# 77-86-1 is listed on the TSCA Inventory.
CAS# 151-21-3 is listed on the TSCA Inventory.
CAS# 3483-12-3 is listed on the TSCA Inventory.
CAS# 6381-92-6 is not on the TSCA Inventory because it is a hydrate. It is considered to be listed if the CAS number for the anhydrous form is on the Inventory (40CFR720.3(u)(2)).
CAS# 7647-01-0 is listed on the TSCA Inventory.
CAS# 7647-14-5 is listed on the TSCA Inventory.
CAS# 7664-38-2 is listed on the TSCA Inventory.
CAS# 26628-22-8 is listed on the TSCA Inventory.
CAS# 62625-28-9 is listed on the TSCA Inventory.

Section 16 - Other Information
MSDS Creation Date: 11/02/2004
Revision #3 Date 7/20/2009

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 the company 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 the company has been advised of the possibility of such damages.

--------------------------------------------------------------------------------