1. PRODUCT AND COMPANY IDENTIFICATION

Product name
Antigen Retrieval Buffer (100X Tris-EDTA Buffer, pH 9.0)

Recommended use
For research use only

Supplier Address
Abcam Inc
1 Kendall Square, Ste 341
Cambridge, MA 02139-1517
USA
Tel: (617)225-2272 or 888-77-ABCAM (22226) (US toll free)
Fax: (866) 739-9884 or (866) 457-9616 (both US toll free)

E-mail address
technical@abcam.com

Emergency telephone
Tel: (617)225-2272 or 888-77-ABCAM (22226) (US toll free) - Monday-Friday 8am-9pm EST

2. HAZARDS IDENTIFICATION

GHS - Classification

<table>
<thead>
<tr>
<th>Serious eye damage/eye irritation</th>
<th>Category 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozone</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

GHS Label elements, including precautionary statements

Signal Word
Danger

Hazard statements
H318 - Causes serious eye damage

Precautionary Statements - EU (§28, 1272/2008)
P310 - Immediately call a POISON CENTER or doctor/ physician
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P280 - Wear protective gloves/ eye protection/ face protection
3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No</th>
<th>Weight %</th>
<th>Classification (Reg. 1272/2008)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tris</td>
<td>77-86-1</td>
<td>3-7</td>
<td>STOT SE 3 (H335) Skin Irrit. 2 (H315) Eye Irrit. 2 (H319)</td>
</tr>
<tr>
<td>Sodium EDTA</td>
<td>64-02-8</td>
<td>3-7</td>
<td>Eye Dam. 1 (H318) Acute Tox. 4 (H302)</td>
</tr>
<tr>
<td>2-butoxyethanol</td>
<td>111-76-2</td>
<td>1-5</td>
<td>Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) Acute Tox. 4 (H302) Acute Tox. 4 (H312) Acute Tox. 4 (H332)</td>
</tr>
</tbody>
</table>

For the full text of the H-Statements mentioned in this Section, see Section 16

4. FIRST AID MEASURES

General advice
Immediate medical attention is required.

Eye contact
Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Immediate medical attention is required.

Skin contact
Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Immediate medical attention is required.

Inhalation
Move to fresh air. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Immediate medical attention is required.

Ingestion
Rinse mouth. Do NOT induce vomiting. Immediate medical attention is required.

Notes to physician
Treat symptomatically.

Protection of first-aiders
Use personal protective equipment. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. FIRE-FIGHTING MEASURES

Flammable properties
Not flammable.

Flash point
not determined

Suitable extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Explosion Data
Sensitivity to Mechanical Impact
none.
Sensitivity to Static Discharge  

none.

Protective equipment and precautions for firefighters  

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions  

Use personal protective equipment. Avoid contact with the skin and the eyes. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Environmental precautions  

Try to prevent the material from entering drains or water courses.

Methods for containment  

Prevent further leakage or spillage if safe to do so.

Methods for cleaning up  

Soak up with inert absorbent material. Pick up and transfer to properly labeled containers. After cleaning, flush away traces with water. Prevent product from entering drains. Dam up.

7. HANDLING AND STORAGE

Advice on safe handling  

Ensure adequate ventilation. Wear personal protective equipment. Use only in area provided with appropriate exhaust ventilation. Do not breathe vapors or spray mist.

Technical measures/Storage conditions  


8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines  

This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-butoxyethanol</td>
<td>TWA: 20 ppm</td>
<td>TWA: 50 ppm TWA: 240 mg/m³ (vacated)</td>
<td>TWA: 5 ppm TWA: 24 mg/m³</td>
</tr>
<tr>
<td>111-76-2</td>
<td></td>
<td>TWA: 5 ppm TWA: 25 ppm (vacated) TWA: 120 mg/m³ (vacated)</td>
<td>S*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA: 5 ppm TWA: 24 mg/m³</td>
<td>IDLH: 700 ppm</td>
</tr>
</tbody>
</table>

NIOSH IDLH: Immediately Dangerous to Life or Health

Other Exposure Guidelines  

Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

Engineering measures  

Showers  
Eyewash stations  
Ventilation systems

Personal protective equipment  

Eye/face protection  
Tightly fitting safety goggles. Face-shield.

Skin and body protection  
No special protective equipment required.

Respiratory protection  
If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Hygiene measures  
When using, do not eat, drink or smoke. Remove and wash contaminated clothing before re-use. Provide regular cleaning of equipment, work area and clothing.
9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>No information available.</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No information available</td>
</tr>
<tr>
<td>pH</td>
<td>9.00</td>
</tr>
<tr>
<td>Flash point</td>
<td>No information available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No information available</td>
</tr>
<tr>
<td>Melting point/range</td>
<td>No information available</td>
</tr>
<tr>
<td>Explosion limits</td>
<td>No information available</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>no data available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No information available</td>
</tr>
<tr>
<td>VOC Content(%)</td>
<td>1.5</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stability</td>
<td>Stable under recommended storage conditions.</td>
</tr>
<tr>
<td>Incompatible products</td>
<td>None known based on information supplied.</td>
</tr>
<tr>
<td>Conditions to avoid</td>
<td>None known based on information supplied.</td>
</tr>
<tr>
<td>Hazardous decomposition products</td>
<td>None known based on information supplied.</td>
</tr>
<tr>
<td>Hazardous polymerization</td>
<td>Hazardous polymerization does not occur.</td>
</tr>
</tbody>
</table>
11. TOXICOLOGICAL INFORMATION

Acute toxicity

Product Information
Corrosive to skin, eyes and/or respiratory tract.

Inhalation
Corrosive by inhalation Causes burns

Eye contact
Causes burns Corrosive to eyes

Skin contact
Corrosive Causes burns

Ingestion
Causes burns

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>LD50 Oral</th>
<th>LD50 Dermal</th>
<th>LC50 Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium EDTA</td>
<td>10 g/kg (Rat)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tris</td>
<td>5900 mg/kg (Rat)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-butoxyethanol</td>
<td>470 mg/kg (Rat)</td>
<td>2270 mg/kg (Rat)</td>
<td>220 mg/kg (Rabbit)</td>
</tr>
</tbody>
</table>

Chronic toxicity

Chronic toxicity
Avoid repeated exposure May cause adverse liver effects

Carcinogenicity
This product contains one or more substances which are classified by IARC as carcinogenic to humans (Group I), probably carcinogenic to humans (Group 2A) or possibly carcinogenic to humans (Group 2B)

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-butoxyethanol</td>
<td>A3</td>
<td>Group 3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ACGIH: (American Conference of Governmental Industrial Hygienists)
A3 - Animal Carcinogen
IARC: (International Agency for Research on Cancer)
Group 3 - Not Classifiable as to Carcinogenicity in Humans

Target Organ Effects

12. ECOLOGICAL INFORMATION

Ecotoxicity
The environmental impact of this product has not been fully investigated.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Toxicity to algae</th>
<th>Toxicity to fish</th>
<th>Toxicity to microorganisms</th>
<th>Toxicity to daphnia and other aquatic invertebrates</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-butoxyethanol</td>
<td>1490: 96 h Lepomis macrochirius mg/L LC50 static 2950: 96 h Lepomis macrochirius mg/L LC50</td>
<td>1698 - 1940: 24 h Daphnia magna mg/L EC50 1000: 48 h Daphnia magna mg/L EC50</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-butoxyethanol</td>
<td>0.81</td>
</tr>
</tbody>
</table>
13. DISPOSAL CONSIDERATIONS

Waste disposal methods
This material, as supplied, is not a hazardous waste according to Federal regulations (40 CFR 261). This material could become a hazardous waste if it is mixed with or otherwise comes in contact with a hazardous waste, if chemical additions are made to this material, or if the material is processed or otherwise altered. Consult 40 CFR 261 to determine whether the altered material is a hazardous waste. Consult the appropriate state, regional, or local regulations for additional requirements.

Contaminated packaging
Do not re-use empty containers.

14. TRANSPORT INFORMATION

DOT
Not dangerous goods

IATA
Not dangerous goods

ADR
Not dangerous goods

15. REGULATORY INFORMATION

U.S. Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No</th>
<th>Weight %</th>
<th>SARA 313 - Threshold Values %</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-butoxyethanol</td>
<td>111-76-2</td>
<td>1.5</td>
<td>1.0</td>
</tr>
</tbody>
</table>

SARA 311/312 Hazard Categories
- Acute Health Hazard: yes
- Chronic Health Hazard: no
- Fire Hazard: no
- Sudden Release of Pressure Hazard: no
- Reactive Hazard: no

Clean Water Act
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

U.S. State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Massachusetts</th>
<th>New Jersey</th>
<th>Pennsylvania</th>
<th>Illinois</th>
<th>Rhode Island</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-butoxyethanol</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

International Regulations

Page 6 / 7
### Chemical Name | Carcinogen Status | Exposure limits
---|---|---
2-butoxyethanol | | Mexico: TWA 26 ppm Mexico: TWA 120 mg/m³ Mexico: STEL 75 ppm Mexico: STEL 360 mg/m³

**WHMIS Note:** This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

### 16. OTHER INFORMATION

**Full text of H-Statements referred to under sections 2 and 3**
H302 + H312 + H332 - Harmful if swallowed, in contact with skin or if inhaled
H315 - Causes skin irritation H318 - Causes serious eye damage H319 - Causes serious eye irritation H335 - May cause respiratory irritation

**Hazard statements**
H318 - Causes serious eye damage

**Revision Date** 13-Jul-2015
**Revision Note** No information available.

**Disclaimer**
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

*End of MSDS*