SAFETY DATA SHEET

Benzoflex(TM) 181 Plasticizer

SECTION 1. IDENTIFICATION

Product name : Benzoflex(TM) 181 Plasticizer

Product code : 32607-00, P3260704, P3260701, P3260700, P3260703, P3260702

Manufacturer or supplier's details

Company name of supplier : Eastman Chemical Company

Address : 200 South Wilcox Drive
           Kingsport TN 37660-5280

Telephone : (423) 229-2000

Emergency telephone : CHEMTREC: +1-800-424-9300, +1-703-527-3887 CCN7321

Recommended use of the chemical and restrictions on use

Recommended use : Plasticiser

Restrictions on use : None known.

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with 29 CFR 1910.1200

Reproductive toxicity : Category 1B

GHS label elements

Hazard pictograms : 

Signal Word : Danger

Hazard Statements : H360D May damage the unborn child.

Precautionary Statements : Prevention:
  P201 Obtain special instructions before use.
  P202 Do not handle until all safety precautions have been read and understood.
  P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:
  P308 + P313 IF exposed or concerned: Get medical advice/ attention.
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Storage:
P405 Store locked up.

Disposal:
P501 Dispose of contents/container to an approved waste disposal plant.

Other hazards
None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Pure substance
CAS-No. : Not Assigned

Ingredients

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-ethylhexyl benzoate</td>
<td>5444-75-7</td>
<td>100</td>
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</tbody>
</table>

SECTION 4. FIRST AID MEASURES

If inhaled : Move to fresh air.
Call a physician or poison control center immediately.

In case of skin contact : Wash off immediately with plenty of water for at least 15 minutes.
Take off all contaminated clothing immediately.
Call a physician or poison control center immediately.

In case of eye contact : Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed : If accidentally swallowed obtain immediate medical attention.

Most important symptoms and effects, both acute and delayed : May damage the unborn child.
Toxic effects for reproduction

Notes to physician : Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : Carbon dioxide (CO2)
Dry chemical
Water spray

Unsuitable extinguishing media : Do not use a solid water stream as it may scatter and spread fire.
Do NOT use water jet.
Specific hazards during fire fighting: None known.

Hazardous combustion products: No hazardous combustion products are known

Further information: None known.

Special protective equipment for fire-fighters: Wear an approved positive pressure self-contained breathing apparatus in addition to standard fire fighting gear.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Local authorities should be advised if significant spillages cannot be contained.

Environmental precautions: Avoid release to the environment.

Methods and materials for containment and cleaning up: Sweep up or vacuum up spillage and collect in suitable container for disposal. Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion: None known.

Advice on safe handling: Do not breathe vapors or spray mist. Do not get on skin or clothing. Do not swallow. Use only with adequate ventilation. Wash thoroughly after handling.

Conditions for safe storage: Keep tightly closed.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters: Contains no substances with occupational exposure limit values.

Engineering measures: Good general ventilation (typically 10 air changes per hour) should be sufficient to control airborne levels. Ensure adequate ventilation.

Personal protective equipment: Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates...
that exposures are within recommended exposure guidelines.

Hand protection

Remarks : Wear suitable gloves.

Eye protection : Safety glasses

Protective measures : Remove respiratory and skin/eye protection only after vapors have been cleared from the area. Ensure that eye flushing systems and safety showers are located close to the working place. Use personal protective equipment as required.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid
Color : colorless
Odor : ester-like
Odor Threshold : not determined
pH : not determined
Melting point/range : not determined
Boiling point/boiling range : 565.7 °F / 296.5 °C
Flash point : 324 °F / 162 °C
Method: Pensky-Martens closed cup
Evaporation rate : not determined
Upper explosion limit / Upper flammability limit : not determined
Lower explosion limit / Lower flammability limit : not determined
Vapor pressure : not determined
Relative vapor density : not determined
Relative density : 0.962
Solubility(ies)
Water solubility : negligible
Partition coefficient: n-octanol/water: No data available
Autoignition temperature: not determined
Decomposition temperature: Thermal stability not tested. Low stability hazard expected at normal operating temperatures.
Viscosity
  Viscosity, dynamic: not determined
  Viscosity, kinematic: 150 - 200 mm²/s (210 °F / 99 °C)
Explosive properties: No data available
Oxidizing properties: No data available

SECTION 10. STABILITY AND REACTIVITY
Reactivity: None reasonably foreseeable.
Chemical stability: Stable under normal conditions.
Possibility of hazardous reactions: Stable
  None known.
Conditions to avoid: None known.
Incompatible materials: Strong oxidizing agents
Hazardous decomposition products: Carbon dioxide (CO2)
  Carbon monoxide
  Carbon dioxide (CO2)
  Carbon monoxide

SECTION 11. TOXICOLOGICAL INFORMATION
Acute toxicity
Not classified based on available information.
Product:
  Acute oral toxicity: Remarks: No data available
  Remarks: None.
  Acute inhalation toxicity: Remarks: No data available
    Remarks: No significant adverse effects were reported
  Acute dermal toxicity: Remarks: No data available
Remarks: No significant adverse effects were reported

**Ingredients:**

**2-ethylhexyl benzoate:**

Acute oral toxicity: LD<sub>50</sub> Oral (Rat): > 2,000 mg/kg  
Assessment: The substance or mixture has no acute oral toxicity

Acute dermal toxicity: LD<sub>50</sub> Dermal (Rat): > 5,000 mg/kg  
Assessment: The substance or mixture has no acute dermal toxicity

**Skin corrosion/irritation**

Not classified based on available information.

**Product:**

Remarks: No data available

**Ingredients:**

**2-ethylhexyl benzoate:**

Species: Rabbit  
Exposure time: 24 h  
Result: slight

**Serious eye damage/eye irritation**

Not classified based on available information.

**Product:**

Remarks: No data available

**Ingredients:**

**2-ethylhexyl benzoate:**

Species: Rabbit  
Result: slight

**Respiratory or skin sensitization**

**Skin sensitization**

Not classified based on available information.

**Respiratory sensitization**

Not classified based on available information.

**Product:**

Remarks: No data available
Ingredients:

2-ethylhexyl benzoate:
Test Type : Skin Sensitization
Result : non-sensitizing

Germ cell mutagenicity
Not classified based on available information.

Ingredients:

2-ethylhexyl benzoate:
Genotoxicity in vitro : Test Type: Mutagenicity - Bacterial Metabolic activation: +/- activation Method: Bacterial Reverse Mutation Assay Result: negative
Test Type: Chromosome aberration test in vitro Metabolic activation: +/- activation Method: In vitro Mammalian Chromosome Aberration Test Result: negative

Carcinogenicity
Not classified based on available information.

Product:
Remarks : This information is not available.

IARC No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA’s list of regulated carcinogens.

NTP No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity
May damage the unborn child.

Ingredients:

2-ethylhexyl benzoate:
Effects on fetal development : Species: Rat Application Route: Ingestion Developmental Toxicity: NOAEL F1: 330 mg/kg body weight

STOT-single exposure
Not classified based on available information.

Product:
Remarks : No data available
STOT-repeated exposure
Not classified based on available information.

**Product:**
Remarks : No data available

Aspiration toxicity
Not classified based on available information.

**Product:**
No data available

No aspiration toxicity classification

Further information

**Product:**
Remarks : None known.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

**Ingredients:**

2-ethylhexyl benzoate:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 0.66 mg/l
Exposure time: 96 h
Remarks: No toxicity at the limit of solubility.

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 0.125 mg/l
Exposure time: 48 h
Remarks: No toxicity at the limit of solubility.

Toxicity to algae : ErC50 (Selenastrum capricornutum (green algae)): > 0.035 mg/l
Exposure time: 96 h
Remarks: No toxicity at the limit of solubility.

Persistence and degradability

**Ingredients:**

2-ethylhexyl benzoate:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 76.5 %
Exposure time: 28 d
Method: OECD Test Guideline 310

Bioaccumulative potential
No data available
Mobility in soil
No data available

Other adverse effects
No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods
Waste from residues : Dispose of in accordance with local regulations.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA-DGR
Not regulated as a dangerous good

IMDG-Code
Not regulated as a dangerous good

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.

Domestic regulation

49 CFR
Not regulated as a dangerous good

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know

CERCLA Reportable Quantity
This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity
This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity
This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Reproductive toxicity

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

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

The ingredients of this product are reported in the following inventories:
### SECTION 16. OTHER INFORMATION

**Further information**

**NFPA 704:**

- **Flammability:** 1
- **Health:** 0
- **Physical Hazard:** 0

**HMIS® IV:**

- **Health:** *
- **Flammability:** 1
- **Physical Hazard:** 0

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

**Full text of other abbreviations**

- **AICS** - Australian Inventory of Chemical Substances
- **ASTM** - American Society for the Testing of Materials
- **bw** - Body weight
- **CERCLA** - Comprehensive Environmental Response, Compensation, and Liability Act
- **CMR** - Carcinogen, Mutagen or Reproductive Toxicant
- **DIN** - Standard of the German Institute for Standardisation
- **DOT** - Department of Transportation
- **DSL** - Domestic Substances List (Canada)
- **ECx** - Concentration associated with x% response
- **EHS** - Extremely Haz-
The information provided in this Material 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.