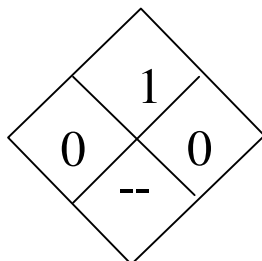


**PRODUCT: DIBUTYL PHTHALATE (DBP)**

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**RISK DIAMMOND – NFPA 704****1** – Fire: risk hazard under strong heating**0** – Health: no special risk**0** – Reactivity: no reaction risk under normal conditions**Revision item 1, exclusion address Taubaté unit. Item 16, updating bibliographical references****1. PRODUCT AND COMPANY IDENTIFICATION**

- **Product name (label): Dibutyl Phthalate (DBP)**
- **Name in English: Dibutyl Phthalate**
- Supplier name, address and telephone number:  
Elekeiroz S.A. (Várzea Paulista-SP unit) - Rua Dr. Edgardo de Azevedo Soares, 392  
CEP 13224-030  
Phone: **(0xx11) 4596-8800 (24 h)**. Fax: (0xx11) 4596-8881  
Elekeiroz S.A. (Camaçari-BA unit) - Rua João Úrsulo, 1261, Pólo Petroquímico do Nordeste  
CEP 42810-000  
Phone: **(0xx71) 3632-7711 (24 h)**  
Fax: (0xx71) 3632-2110  
E-mail (customer service):  
[elisabete.moskalenko@elekeiroz.com.br](mailto:elisabete.moskalenko@elekeiroz.com.br)  
[carlos.villani@elekeiroz.com.br](mailto:carlos.villani@elekeiroz.com.br)

**2. COMPOSITION AND INFORMATION ABOUT INGREDIENTS**

- Common chemical name of the substance:  
**Dibuty Phthalate**
- Synonyms:  
DBP, Di (N-Butyl) phthalate, N-Butyl Phthalate, Dibutyl O-Phthalate.
- Register in *Chemical Abstract Service* (n.º C.A.S):  
[84-74-2]
- Ingredients that contribute to hazard:  
Dibutyl Phthalate: 98 - 100%.

**3. HAZARDS IDENTIFICATION**

- Hazards and most important effects:  
Attention, harmful if ingested. Causes severe eye irritation. It can cause allergic irritation in the skin. Causes irritation in respiratory tract. It can pollute the environment.

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- **Contact with skin:**  
Remove contaminated clothing and shoes and wash the affected area with plenty of water (during 15 minutes). Wash the affected area with water and soap.
- **Contact with eyes:**  
Wash the eyes immediately with plenty of water, including under the eyelids (for 15 minutes). Remove contact lenses, if it is the case, with medical help.
- **Inhalation:**  
Remove the victim from the place. Watch respiratory conditions. It occurs respiratory arrest, apply artificial respiration. If the respiration is difficult, apply oxygen.
- **Ingestion:**  
Do not induce to vomit. If the victim is conscious, give him/her immediately, 2 glasses of water.

Obs.: in all cases, it should be provided emergency medical assistance.

- **Notes for physician:**  
In case of inhalation: oxygentherapy and induced respiration, if necessary. Symptomatic treatment.  
Ingestion: aspiration with nasogastric probe taking care for not inducing to vomit. Symptomatic treatment. It can be beneficial the use of active carbon mixture. Add 50 g of activated carbon in 400 ml of water and mix well. Administer 5ml/kg or 350ml for an average adult. If there is irritation in respiratory tract, monitor pulmonar function and perform X-Ray. Control respiratory and cardiovascular functions. There is no specific antidote.

**5. FIREFIGHTING MEASURES**

Combustible product. Above flash point, mixture vapour-air are flammable within explosion limits.

- **Proper extinguishing media:**  
-Light fire: chemical/dry powder, mechanical foam, CO<sub>2</sub> and water fog.  
-Intense fire: mechanical foam or water fog.
- **Firefighting / firemen protection special procedures:**  
Remove containers from fire area, if this can be done without risk. Use water to cool the side of containers which are exposed to fire, until the fire is well extinguished. The personnel involved in firefighting should wear selfcontained breathing apparatus and full protection clothing.

**6. CONTROL MEASURES FOR SPILLS AND LEAKAGES**

- **Personal precautions:**  
If you are in the area where the product is being used, notify Safety personnel and people responsible for the department. Keep away combustible and flammable materials. If necessary, sound emergency alarm. Isolate the area, provide local ventilation/exhaustion. Keep downwind and keep away from low areas. There is no dust formation. Prevent contact with skin, eyes and respiratory ways, with personal protective equipment, mentioned in item 8.

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- Environmental precautions / cleaning methods:  
Remove all ignition sources in the vicinity of the area where the spill occurred. Avoid contact with bodies of water and sewage galleries.  
-Little spills: absorb with sand, earth, vermiculite, or other absorbant and non-combustible material, place in drums for later disposal.  
-Large spills: confine the flow, away of the spill, avoid bodies of water.

**7. STORAGE AND HANDLING**

- Handling (technical measures):  
Chemical products should be handled only for those who are trained about risks during the handling of hazardous materials. Do not smoke, drink or eat in places where the product is handled. Use recommended PPE's (see item 8). Keep good personal hygiene, specially before eating, drinking, smoking or using toilet. Wear always clean clothing. Avoid prolonged contact with the product. Avoid to inhale vapours. Containers of this product can be hazardous when empty, since they contain product residues (vapours, liquids).
- Storage (technical measures):  
The area should be ventilated and free from ignition sources. The product should be stored, when in bulk, in 304 stainless steel or alluminum or carbon steel tanks, outdoors or isolated, avoiding always the storage with incompatible substances (oxidizing agents, see item 10). To prevent static electricity discharges, ground all containers and equipment used in loading, unloading and transfer operations in production and storage areas. Protect containers against physical damages. When the product is stored in drums, they should be in perfect conditions, non contaminated. Drums should remain upright, avoiding physical damages. Maximum recommended piling is of 3 drums (height), considering adequate palletization, preferably of non combustibile material. The drum should be tightly sealed.

Safe materials for package:

Note: packages should be certified according to Resolution ANTT 420/04 and International Regulation (IATA/IMDG).

Recommended:

Polyethylene, Polypropylene, Stainless steel, Carbon steel and alluminum. For other packages, consult manufacturer.

Inadequate:

Consult manufacturer.

**8. EXPOSURE CONTROL AND PERSONAL PROTECTION**

- Control Parameters:  
Not included in Decree 3214/78, Regulatory Standard NR-15, chart I.  
ACGIH = not included.
- Personal Protective Equipment:  
-Natural rubber (látex) or pvc gloves;  
-Safety glasses full vision;  
-PVC or trevira apron;  
-Safety boot;

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-Semifacial respirator or panoramic mask with cartridge for organic vapours. The cartridge should be replaced each six months (if open), or if the user feels product smell, or if it occur physical damages.

**9. PHYSICAL-CHEMICAL PROPERTIES**

- Physical state: viscous liquid.
- Color: from colorless to yellow.
- Odour: slight and characteristic.
- Chemical formula:  $C_{16}H_{22}O_4$
- Average/medium molecular weight (g/mol): 278.34.
- pH: not available information.
- Specific temperatures at which occur physical state changes:
  - Boiling point: 340°C (760 mmHg)
  - Melting point: -40°C (760 mmHg).
- Flash point: 171°C.
- Ignition point: 402°C.
- Explosion limits: lower: 0.5 % V/V. Upper: 2.5 V/V.
- Vapour pressure: 2 mmHg at 150°C. < 0.1 mmHg at 20°C.
- Vapour density: 9.6 (Air=1)
- Liquid density: 1.042 to 1.05 at 20°C/4°C.  $H_2O = 1$ .
- Solubility:
  - Water: soluble in approximately 2500 parts of water ( approximately 0.04%).
  - Alcohol, ether, benzene and ketone: very soluble.
- Evaporation rate: < 1 (butyl acrilate = 1).

**10. STABILITY AND REACTIVITY**

- Specific conditions:
  - Stable under normal temperature and storage conditions. It does not happen polymerization.
- Conditions to be avoided:
  - Avoid flammings and ignition sources.
- Incompatible materials or substances:
  - Strong oxidizing agents, strong acids, strong alkalis, liquid chlorine (explosive reaction), nitrates and alkalis.
- Hazardous decomposition products:
  - Thermic decomposition can produce irritant fumes including  $CO_2$  and Carbon Monoxide.

**11. TOXICOLOGICAL INFORMATION**

- Acute toxicity and local effects:

Inhalation: it can cause irritation to respiratory tract, coryza and throat ache.  
Rat,  $LC_{50}$ : 4250 mg/m<sup>3</sup>.

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Contact with skin: it can cause irritation, contact burns, itching, redness, swelling and eruptions.  
Rat, skin, LD<sub>50</sub>: 6g/kg.

Contact with eyes: it can cause irritation with tearing, pain and blurred vision.

Ingestion: causes irritation to gastrointestinal tract. Symptoms can include nausea, vomits and diarrhoea, headache and weakness. Ingestion of 10g (or 40 g/kg) by a person, produces nausea and vomits, vertigo (dizziness), sensitivity to light, eyelids swelling, eyes tearing and effects over kidneys (red and White cells and oxalate crystals, in urine).

Human, oral, TD<sub>50</sub>: 140 mg/kg can cause hallucinations, perceptive distortions, náusea and vomit, and changes in kidneys and bladder/vesicle.

Non listed as carcinogenic by IARC, NTP, OSHA, NIOSH, MAK or ACGIH; EPÁ – Class D, non classified as human carcinogenic.

- Other information:  
LD50 (rabbit), approximately 21 mg/kg (low toxicity - skin).  
LD50 (rato), 8 mg/kg (low toxicity - ingestion).

## 12. ECOLOGICAL INFORMATION

- Environmental effects, behaviors and product impacts:

When released to soil, it can biodegrade, however, it can lixiviate or reach underground waters. Slow biodegradation (66 to 98%) in 26 weeks).

When released to water, it is expected that biodegrades, but, it can remain from 10 to 30 days. It's expected that it will be adsorbed to particulates and sediments (specially those with high values of fulvic acids).

In air, it can be removed through ventilation. Volatilization is not quick, but it occurs with half life of 47 days in a river with 1 meter depth, 1 m/seg flow, with wind speed of 3 m/sec. Hydrolysis does not occur normally, except in alkaline and oligotrophic waters (half life of 76 days, pH 9). In air, most part of DBP remains in particulate phase and it is susceptible to gravitational sedimentation. The small existing part in vapour phase will react with hydroxyl radicals produced photochemically with estimated half life of 18 hours.

- Bioaccumulation:  
Bioconcentration factor (*BCF*), less than 100. It is not expected significant bioaccumulation.
- Ecotoxicity  
96 hours - LC<sub>50</sub> - *Fathead Minnow*: 1.3 mg/l;  
*Bluegill*, TL<sub>m</sub>: 1234 ppm/24 hr;  
*Gymnodinium breve* (algae), LC<sub>50</sub> = 200 ug/L/96hr.  
Henry Law constant: 1m09 x 10<sup>-6</sup> atm/m<sup>3</sup>/mole.  
Partition coefficient octanol/water: log K<sub>ow</sub> = 4.9.

**PRODUCT: DIBUTYL PHTHALATE (DBP)****ISSUE DATE: 10/02/2002    MSDS Nº: 63    REV. Nº: 3    REVISION DATE: 03/17/2008    PAGE: 6/8****13. CONSIDERATIONS ABOUT TREATMENT AND DISPOSAL**

- Treatment and disposal methods for product, wastes and used packages:  
Any wastes treatment should be in accordance with local and national regulations. Do not release the product or waste in bodies/cursos of water or sewage galleries.  
Consult NBR 10004 (Wastes Classification) and NBR 13221 (Wastes Transportation).

**14. TRANSPORTATION INFORMATION**

Follow hazardous goods road transportation regulation according to decree nº 96044, 05/18/88 and Resolution ANTT 420/04.

Follow hazardous goods ferry/train/ferroviário transportation regulation according to decree nº 98973, 02/21/90.

Follow Mercosur hazardous goods transportation regulation according to decree nº 1797, 01/25/96.

- **Road transportation (Brazil/MERCOSUR):**  
**Proper shipping name: SUBSTÂNCIA QUE REPRESENTA RISCO AO AMBIENTE, N.E. (Dibutyl Phthalate).**  
**Risk class: 9**  
**Risk Nº: 90**  
**UN Nº: 3082**  
**Packing group: III**
- DOT - EUA - road:  
Proper Shipping Name: Environmentally Hazardous Substance, liquid, N.O.S (Di-N-Butyl Phthalate).  
Hazard Class: 9.  
UN/NA: UN 3082 - NA 9095.  
Packing Group: III.  
Information Reported for Product/Size: 20 L.
- I.M.O – marine international:  
Proper Shipping Name: Environmentally Hazardous Substance, liquid, N.O.S (Di-N-Butyl Phthalate).  
Hazard Class: 9.  
UN/NA: UN 3082 - NA 9095.  
Packing Group: III.  
Information Reported for Product/Size: 20 L.
- I.C.A.O - aerial international:  
Proper Shipping Name: Environmentally Hazardous Substance, liquid, N.O.S (Di-N-Butyl Phthalate).  
Hazard Class: 9.  
UN/NA: UN 3082 - NA 9095.  
Packing Group: III.  
Information Reported for Product/Size: 20 L.

**15. REGULATIONS**

Transportation: follow item 14.

Wastes disposal: follow item 13.

Consult related national and international regulation.

Consult Brazilian Standards related to the product.

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EPA regulation:

- RCRA 40 CFR: listed as toxic waste (U069)
- CERCLA 40 CFR 302.4: listed by CWA Section 311 (b)(4), by RCRA Section 3001, by CWA Section 307(a) 10 lb (4.535 kg).
- SARA 40 CFR 372.5: Listed.
- SARA EHS 40 CFR 355: non listed.
- TSCA: listed.

**EPA** – Environmental Protection Agency

**SARA** - Superfund Amendments and Reauthorization Act

**RCRA** - Resource Conservation and Recovery Act

**CERCLA** - Comprehensive Environmental Response, Compensation, and Liability Act

**TSCA** - Toxic Substances Control Act

Packages certification: consult Resolution ANTT 420/04 and Internation Regulation IATA/IMDG.

**16. OTHER INFORMATION**

References:

- MSDS - GENIUM PUBLISHING CORP. (record n.º DIB6610, revision 02/2003);
- MSDS – MALLINCKKODT BAKER, INC. Record D2056, revision 25/02/99.
- MSDS - DUPONT - DU000554, revision 07/18/96, print 07/30/97.
- MSDS - CHRIS - Chemical Hazard Respons Information System.
- Merck Index - Dangerous Properties of Materials - seventh edition - N.Irving Sax and Richard J.Lewis, Sr.
- DIPPR Database - AIChE. 1994.
- Elekeiroz Specifications.
- IATA/DGR – International Air Transport Association – 2007Edition.**
- IMO/IMDG – International Maritime Dangerous Goods – 2006 Edition.**
- Manual ACGIH, Portuguese version, 2006 (translation: ABHO).**
- Commented Regulatory Standards – Occupational Health and Safety Regulation Volume I – Press GVC 2005.

Observation:

The information contained in this MSDS are offered in good faith and as guide tool, without incurring expressed or implicit liability. If clearings or additional information are needed, consult the manufacturer.