

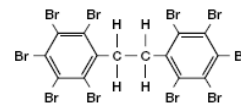


Decabromodiphenyl Ethane(DBDPE)

G'sal®FR

Description

Product Name : Decabromodiphenyl Ethane (DBDPE)
 Equivalent Name : Albemarle Saytex 8010 ; Chemtura Fire-master 2100R ; Dead Sea FR-1410
 Cas No. : 84852-53-9
 Molecular Weight : 971.23



Application

It is used in high-impact polystyrene, engineering plastics, wires and cables, insulator, elastomer and thermoset plastics etc.
 HIPS, PE, PP, ABS, PBT, UPE, Epoxy

Benefits and Features

It is very good thermal stability and high bromine content making it a prime candidate for high temperature applications. It exhibits good UV resistance and hence is suitable for use in many applications requiring color stability. Because of its very good thermal stability and low blooming characteristics, flame retardant is suitable for use in systems where recycling is anticipated. DBDPE flame retardant is not acutely toxic, it is not teratogenic, and it is not harmful to fish. DBDPE flame retardant can be used in the formulation of products meeting European dioxin ordinances.

Typical Properties

Appearance white powder.
 Bromine %.....81-82
 Melting point °C... 340 min.
 Brightness % ... 87 min.
 Free Br ppm... 10 max.
 Particle size(D₅₀) um... 5 max.
 Volatile %..... 0.1 max.
 TGA
 1% weight loss 314°C
 5% weight loss 344°C
 10% weight loss 359°C
 50% weight loss402°C
 90% weight loss 423°C

These properties are typical but do not constitute a specification either in part or as a whole.
 Specification data is available on request from sales, customer service or customer technical service.

Shipping Information

Transportation classification: No regulated for transportation.
 Packing: 25kg/bag; 1mt/pallet; 20mt/20'FCL

More information

Please Contact Us

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DBDPE PACKAGE PICTURES FILE

- OCEANCHEM GROUP LIMITED | Mar 04, 2022

Product Name : Decabromodiphenyl Ethane (DBDPE)
Equivalent Name : Albemarle Saytex 8010 ; Chemtura Fire-master 2100R ; Dead Sea FR-1410
Cas No. : 84852-53-9
Appearance : White Powder
Package : 25kgs/Bag; 1000kgs/Pallet; 20mt/20'FCL

■ **DBDPE Package**



Package in 2011



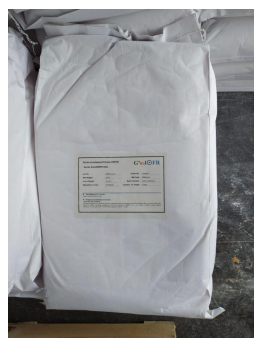
Package in 2013



Package in 2014



Package in 2016



Package in 2018



Package in 2018



Package in 2019



Package in 2020



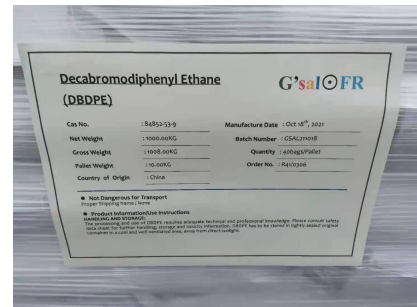
Package in 2021

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www.oceanchem-group.com
■ DBDPE Label

■ DBDPE Pallet


1. Product and Company Identification

| | |
|----------------------------|---|
| Product Name | Decabromodiphenyl Ethane(DBDPE) |
| Company Information | <p>Oceanchem Group Limited 9th Floor, Building B Future Plaza, No.88 Fenghuang Street, Fangzi District, Weifang, Shandong, China 261200 Tel: +86-536-8596048 Fax: +86-536-8596047 Information in case of emergency: Tel: +86-536-8596046 www.oceanchem-group.com Email: sales@oceanchem-group.com</p> |

2. Hazards Identification

3.1 Classification of the substance/mixture:

3.1.1 Classification:

The substance is classified as following according to 67/548/EEC and REGULATION (EC) No 1272/2008:

REGULATION (EC) No 1272/2008

| | |
|----------------------------------|------------------|
| Hazard classes/Hazard categories | Hazard statement |
| N/A | N/A |

For full text of H- phrases: see section 2.2.

67/548/EEC

| | |
|-------------------------|-----------|
| Hazards characteristics | R-Phrases |
| N/A | N/A |

For full text of R- phrases: see section 16.

3.2 label elements:

| | |
|---------------------------------|------------------------------|
| Hazard Pictograms: | No hazard pictogram is used. |
| Signal Word(S): | No signal word is used. |
| Hazard Statement: | Not applicable. |
| Precautionary statement: | Not applicable. |

3.3 Other hazards:

The substance is not considered a PBT/vPvB.

3. Composition/Information on Ingredients

| Composition | CAS NO | Weight% |
|--------------------------|------------|---------|
| Decabromodiphenyl ethane | 84852-53-9 | >97 |

4. First Aid Measures

4.1 Description of first aid measures:

In all cases of doubt, or when symptoms persist, seek medical attention.

4.1.1 In case of inhalation:

Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

4.1.2 In case of skin contact:

After contact with skin, wash immediately with plenty of water.

4.1.3 In case of eyes contact:

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

4.1.4 In case of ingestion:

If swallowed, drink plenty of water. Do not induce vomiting. Seek medical advice.

4.2 Most important symptoms and effects, both acute and delayed:

The product is not classified as harmful to human health effect.

4.3 Indication of any immediate medical attention and special treatment needed:

If skin irritation or rash occurs, get medical advice/attention.

5. Fire Fighting Measures

- 5.1 Extinguishing media:**
Suitable extinguishing media: Carbon dioxide, dry chemicals, foam, water spray (mist).
Unsuitable extinguishing media: Not available.
5.2 Special hazards arising from the substance or mixture In case of fire, the following may be released: hydrogen bromide, bromine and oxides of carbon.
5.3 Special fire fighting methods and special protective actions for fire-fighters: As in any fire, wear self-contained breathing apparatus pressure-demand. MSHA/NIOSH (approved or equivalent) and full protective gear.

6. Accidental Release Measures

- 6.1 Personal precautions, protective equipment and emergency procedures:**
6.1.1 For non-emergency personnel: Use personal protective equipment. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.
6.1.2 For emergency responders: Wear an appropriate NIOSH/MSHA approved respirator if dust is generated.
6.2 Environmental Precautions: Do not allow material to be released to the environment without proper governmental permits.
6.3 Methods for Containment and Cleaning up: Shovel up residues and place in a labeled sealable container for subsequent safe disposal.
6.4 Reference to other sections: See Section 7 for information on safe handling.
 See Section 8 for information on personal protection equipment.
 See Section 13 for information on disposal.
6.5 Additional information: Not applicable.

7. Handling and Storage

- 7.1 Precautions for safe handling:**
7.1.1 Protective measures: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Avoid ingestion and inhalation.
7.1.2 Advice on general occupational hygiene: Do not eat, drink and smoke in work areas. Wash hands after use. Remove contaminated clothing and protective equipment before entering eating areas.
7.2 Conditions for safe storage, including any incompatibilities: Keep container tightly closed. Store in dry, cool, well-ventilated area.
7.3 Specific end use(s): Not applicable.

8. Exposure Controls/Personal Protection

- 8.1 Control parameters:**
8.1.1 Occupational exposure limits: Not available.
8.1.2 Additional exposure limits under the conditions of use: Not available.
8.1.3 DNEL/DMEL and PNEC-Values:

| Exposure pattern | Route | Descriptor | DNEL / DMEL | (Corrected) Dose descriptor *) | Most sensitive endpoint | Justification |
|--------------------------|--------|------------------------|-------------|--------------------------------|-------------------------|---|
| Acute - systemic effects | Dermal | Exposure based waiving | | | | DBDPethane is not a skin irritant nor is it toxic by dermal exposure. The NOAEL from a rat oral 90-day study is 1000 mg/kg/d, the highest dose tested. Dermal exposure to DBDPethane is not expected to be a route of worker exposure. DBDPethane is not expected to be absorbed through the skin based on its high molecular weight and negligible |

| | | | | | | |
|------------------------------|------------|--------------------------------|---------------------|--|------------------------|---|
| | | | | | | solubility in water and organic solvents. Using Fick's first law, EPI's DERMWIN (v1.43) estimates that $3.2 \times E-15$ mg/cm ² -event would be absorbed dermal for an event duration of 0.25 hr. Thus, calculation of a Dermal DN (M)EL is not necessary. |
| Acute - systemic effects | inhalation | Exposure based waiving | | | | DBDPEthane is not acutely toxic by the oral and dermal routes. Acute effects from inhalation exposures are not expected. A long-term inhalation DNEL was derived. |
| Acute - local effects | Dermal | Exposure based waiving | | | | DBDPEthane is not a skin irritant nor is it toxic by dermal exposure. The NOAEL from a rat oral 90-day study is 1000 mg/kg/d, the highest dose tested. Dermal exposure to DBDPEthane is not expected to be a route of worker exposure. DBDPEthane is not expected to be absorbed through the skin based on its based on its high molecular weight and negligible solubility in water and organic solvents. Using Fick's first law, EPI's DERMWIN (v1.43) estimates that $3.2 \times E-15$ mg/cm ² -event would be absorbed dermally for an event duration of 0.25 hr. Thus, calculation of a Dermal DN(M)EL is not necessary. |
| Acute - local effects | Inhalation | Exposure based waiving | | | | DBDPEthane is not acutely toxic by the oral and dermal routes. Acute effects from inhalation exposures are not expected. A long-term DNEL was derived. |
| Acute - systemic effects | Dermal | Exposure based waiving | | | | DBDPEthane is not a skin irritant nor is it toxic by dermal exposure. The NOAEL from a rat oral 90-day study is 1000 mg/kg/d, the highest dose tested. Dermal exposure to DBDPEthane is not expected to be a route of worker exposure. DBDPEthane is not expected to be absorbed through the skin based on its based on its high molecular weight and negligible solubility in water and organic solvents. Using Fick's first law, EPI 's DERMWIN (v1.43) estimates that $3.2 \times E-15$ mg/cm ² -event would be absorbed dermally for an event duration of 0.25 hr. Thus, calculation of a Dermal DN(M)EL is not necessary. |
| Long-term - systemic effects | Inhalation | DNEL (Derived No Effect Level) | 6 mg/m ³ | NOAEC: 150 mg/m ³ (based on AF of 25) | repeated dose toxicity | The REACH Guidance (Example B3, Inhalator exposure; oral N(L)OEL rat) was used to calculate the DNEL. The rat 90-d oral NOAEL of 1000 mg/kg/d was used as the starting point. The oral NOAEL was converted to a corrected inhalator NOAEC: $(NOAEL_{oral}) (1/sRV_{rat}) (ABS_{oral} / ABS_{inh-human}) = 1000(1/0.8)(0.01/0.01) = 1250$. The rat |

| | | | | | | |
|---------------------------|------------|------------------------|--|--|--|--|
| | | | | | | <p>respiratory volume (sRVrat) of 0.8 L/min/kg bw was taken from the REACH Guidance. Pharmacokinetic work indicates oral absorption in the rat is minimal, if any. A fraction of 0.01 (1%) absorption was used for the calculation. Human inhalation absorption has not been measured. However, DBDPEthane would be present in air as particulates. Only a fraction of particulates, based on size, reach the absorptive portions of the lungs, and much of that inhaled is coughed up and swallowed. Systemic absorption once swallowed resembles that after ingestion. Based on this, the fraction absorbed by humans after inhalation was also set to 0.01 (1%). REACH Guidance for estimating worker Inhalatory NOELcorrected without allometric scaling: (Inhalatory NOELcorrected) (sRVhuman/WRV) = 1250 x 0.2 = 150. Using the default assessment factors recommended by the REACH Guidance of 2.5 (interspecies), 5 (worker), 2 (sub-chronic to chronic), 1 (dose-response) and 1 (quality of whole database), an overall assessment factor of 25 was derived. The DNELworker = 6 was calculated by dividing the Worker Inhalatory NOELcorrected by the overall assessment factor.</p> |
| Long-term - local effects | Dermal | Exposure based waiving | | | | <p>DBDPEthane is not a skin irritant nor is it toxic by dermal exposure. The NOEL from a rat oral 90-day study is 1000 mg/kg/d, the highest dose tested. Dermal exposure to DBDPEthane is not expected to be a route of worker exposure. DBDPEthane is not expected to be absorbed through the skin based on its based on its high molecular weight and negligible solubility in water and organic solvents. Using Fick's first law, EPI's DERMWIN (v1.43) estimates that 3.2 x E-15 mg/cm2-event would be absorbed dermally for an event duration of 0.25 hr. Thus, calculation of a Dermal DN(M)EL is not necessary.</p> |
| Long-term - local effects | Inhalation | Exposure based waiving | | | | <p>DBDPEthane is not a skin or eye irritant. Local effects after long-term inhalation exposure are not expected. A DNEL for long-term systemic exposure was calculated.</p> |

*) The (corrected) dose descriptor starting points have been automatically calculated by multiplying the values of the fields "D(N)MEL" and "Assessment factor" provided in the Endpoint summary of IUCLID section 7. Toxicological information. It reflects the value after any corrections, e.g. route-to-route extrapolation. See column "Justification" for the rationale behind such modifications and the use of assessment factors.

DN(M)ELs for the general population

| Exposure pattern | Route | Descriptor | DNEL / (Corrected) | Most sensitive endpoint | Justification |
|------------------|-------|------------|--------------------|-------------------------|---------------|
|------------------|-------|------------|--------------------|-------------------------|---------------|

| | | | DMEL | Dose descriptor *) | | |
|--------------------------|------------|--------------------------------|-----------------|---|------------------------|---|
| Acute - systemic effects | Dermal | Exposure based waiving | | | | DBDPETHANE is not sold to the general public. DBDPETHANE is not a skin irritant nor is it toxic by dermal exposure. The NOAEL from a rat oral 90-day study is 1000 mg/kg/d, the highest dose tested. Further, dermal exposure would not be a route leading to exposure. DBDPETHANE is not expected to be absorbed through the skin based on its based on its high molecular weight and negligible solubility in water and organic solvents. Using Fick's first law, EPI estimates that 3.2×10^{-15} mg/cm ² -event would be absorbed dermally for an event duration of 0.25 hr. Thus, calculation of a Dermal DN(M)EL is not necessary. |
| Acute - systemic effects | Inhalation | Exposure based waiving | | | | DBDPETHANE is not sold to the general public. Based on its lack of toxicity, a short-term DNEL for acute inhalation exposures in workers was not calculated. Exposures to the general population would be lower than that of workers. Thus, a short-term DNEL for inhalation exposures to the general public was not necessary. |
| Acute - systemic effects | Oral | DNEL (Derived No Effect Level) | 80 mg/kg bw/day | NOAEL: 1,000.0 mg/kg bw/day (based on AF of 12.5) | repeated dose toxicity | DBDPETHANE is not sold to the general public. A DNEL oral was derived using the REACH Guidance by applying allometric scaling and assessment factors to the rat oral 90-d NOAEL, 1000 mg/kg/d. Comparable absorption in rats and humans was assumed. Assessment factors were interspecies correction for differences in metabolic rate per body weight (0.25), remaining interspecies differences (2.5), intraspecies - general population (10), exposure duration - subchronic to chronic (2), dose-response (1) and quality of whole database (1). The assessment factors totaled 12.5. Thus, the DNEL oral was $1000/12.5 = 80$. |
| Acute - local effects | Dermal | Exposure based waiving | | | | DBDPETHANE is not sold to the general public. DBDPETHANE is not a skin irritant nor is it toxic by dermal exposure. The NOAEL from a rat oral 90-day study is 1000 mg/kg/d, the highest dose tested. Dermal exposure to DBDPETHANE is not expected to be a route of worker exposure. DBDPETHANE is not expected to be absorbed through the skin based on its based on its high molecular weight and negligible solubility in water and organic solvents. Using Fick's first law, EPI estimates that 3.2×10^{-15} mg/cm ² -event |

| | | | | | | |
|------------------------------|------------|--------------------------------|----------------------|--|------------------------|--|
| | | | | | | would be absorbed dermally for an event duration of 0.25 hr. Thus, calculation of a Dermal DN(M)EL is not necessary. |
| Acute - local effects | Inhalation | Exposure based waiving | | | | DBDPEthane is not sold to the general public. It is not acutely toxic or irritating to the skin or eyes. Based on its lack of toxicity, a short-term DNEL for acute inhalation exposures in workers was not calculated. Exposures to the general population would be lower than that of workers. Thus, a short-term DNEL for inhalation exposures to the general public was not necessary. |
| Long-term - systemic effects | Dermal | Exposure based waiving | | | | DBDPEthane is not sold to the general public. DBDPEthane is not a skin irritant nor is it toxic by dermal exposure. The NOAEL from a rat oral 90-day study is 1000 mg/kg/d, the highest dose tested. Dermal exposure to DBDPEthane is not expected to be a route of worker exposure. DBDPEthane is not expected to be absorbed through the skin based on its based on its high molecular weight and negligible solubility in water and organic solvents. Using Fick's first law, EPI's DERMWIN (v1.43) estimates that 3.2 x E-15 mg/cm2-event would be absorbed dermally for an event duration of 0.25 hr. Thus, calculation of a Dermal DN(M)EL is not necessary. |
| Long-term - systemic effects | Inhalation | DNEL (Derived No Effect Level) | 70 mg/m ³ | NOAEC: 875.0 mg/m ³ (based on AF of 12.5) | repeated dose toxicity | DBDPEthane is not sold to the general public. A DNEL inhalation for the general public was derived using the REACH Guidance by converting the rat 90-d oral NOAEL to inhalation, applying allometric scaling and assessment factors to the rat oral 90-d NOAEL, 1000 mg/kg/d. Comparable absorption in rats and humans was assumed. The 90-d rat oral NOAEL was converted to inhalation by dividing by 1.15 m ³ /kg bw (1000/1.15 = 870 mg/m ³ (24 hr)). Assessment factors were interspecies correction for differences in metabolic rate per body weight (0.25), remaining interspecies differences (2.5), intraspecies - general population (10), exposure duration - subchronic to chronic (2), dose-response (1) and quality of whole database (1). The assessment factors totaled 12.5. Thus, the DNEL inhalation for the general public 870/12.5 = 70 mg/m ³ . |
| Long-term - systemic effects | Oral | DNEL (Derived No Effect Level) | 80 mg/kg bw/day | NOAEL: 1,000.0 mg/kg bw/day (based on | repeated dose toxicity | DBDPEthane is not sold to the general public. The NOAEL from a rat oral 90-d study is 1000 mg/kg/d. A DNEL oral for the general public was derived using the REACH Guidance assuming comparable |

| | | | | | | |
|---------------------------|------------|------------------------|--|-------------|--|--|
| | | | | AF of 12.5) | | absorption by rats and humans, allometric scaling, and assessment factors. Assessment factors were interspecies correction for differences in metabolic rate per body weight (0.25), remaining interspecies differences (2.5), intraspecies - general population (10), exposure duration - subchronic to chronic (2), dose-response (1) and quality of whole database (1). The assessment factors totaled 12.5. The DNEL oral was 80 mg/kg (1000/12.5). |
| Long-term - local effects | Dermal | Exposure based waiving | | | | DBDPEthane is not a skin irritant nor is it toxic by dermal exposure. The NOAEL from a rat oral 90-day study is 1000 mg/kg/d, the highest dose tested. Dermal exposure to DBDPEthane is not expected to be a route of worker exposure. DBDPEthane is not expected to be absorbed through the skin based on its based on its high molecular weight and negligible solubility in water and organic solvents. Using Fick's first law, EPI estimates that 3.2×10^{-15} mg/cm ² -event would be absorbed dermally for an event duration of 0.25 hr. Thus, calculation of a Dermal DN(M)EL is not necessary. |
| Long-term - local effects | Inhalation | Exposure based waiving | | | | DBDPEthane is not sold to the general public, and is not toxic or irritating. Based on its lack of toxicity, a short-term DNEL for local inhalation exposures was not calculated. Likewise, a long term DNEL for the general public is considered unnecessary. |

*) The (corrected) dose descriptor starting points have been automatically calculated by multiplying the values of the fields "D(N)MEL" and "Assessment factor" provided in the Endpoint summary of IUCLID section 7. Toxicological information. It reflects the value after any corrections, e.g. route-to-route extrapolation. See column "Justification" for the rationale behind such modifications and the use of assessment factors.

PNEC values

| PNEC | Assessment factor | Remarks/Justification |
|---|-------------------|--|
| PNEC aqua (freshwater): 110 mg/L | | Acute toxicity studies have been performed in fish, algae and daphnia. No effects were observed at 110 mg/L using the WAF methodology. During its review, the UK concluded it was not possible to derive a PNEC for fresh or salt water from this data because of the lack of toxicity (Dungey and Akintoye 2007). Further, the UK considered long toxicity to pelagic organisms unlikely (see page 56, Dungey and Akintoye 2007). |
| No data: aquatic toxicity unlikely | | No effects were observed in 3 freshwater species at 110 mg/L using the WAF methodology. During its review, the UK concluded it was not possible to derive a PNEC for fresh or salt water from this data because of the lack of toxicity (Dungey and Akintoye 2007). Further, the UK considered long term toxicity to pelagic organisms unlikely (see page 56, Dungey and Akintoye 2007). |
| PNEC aqua (intermittent releases): 110 mg/L | | Acute toxicity studies have been performed in fish, algae and daphnia. No effects were observed at 110 mg/L using the WAF methodology. During its review, the UK concluded it was not possible to derive a PNEC for fresh or salt |

| | | |
|--|-----|--|
| | | water from this data because of the lack of toxicity (Dungey and Akintoye 2007). Further, the UK considered long toxicity to pelagic organisms unlikely (see page 56, Dungey and Akintoye 2007). |
| PNEC sediment (freshwater): 100 mg/kg sediment dw | 50 | Extrapolation method: assessment factor Dungey and Akintoye (2007) stated in their review of the substance for the UK Environment Agency: "Two long-term toxicity tests have been performed with freshwater sediment-dwelling organisms. No statistically significant effects were observed with either Chironomus or Lumbriculus at the highest concentrations tested (5000 mg/kg dry weight in both cases). The PNEC sediment is therefore ≥ 100 mg/kg dry weight, based on this unbounded NOEC and an assessment factor of 50 (in accordance with the TGD)." Dungey and Akintoye (2007) also provided the equivalent values on a wet weight basis: NOEC ≥ 1090 mg/kg wet weight and a PNEC Sediment of ≥ 21 mg/kg wet weight. |
| PNEC sediment (marine water): 10 mg/kg sediment dw | 500 | Extrapolation method: assessment factor The PNEC marine sediment was calculated as recommended by the REACH Guidance. An assessment factor of 500 was applied to the results from 2 long-term freshwater sediments. Thus, the PNEC marine sediment was $5000/500 = 100$ mg/kg dry weight. |
| PNEC soil: 156 mg/kg soil dw | 10 | Extrapolation method: assessment factor The REACH Guidance states that when deriving a PNEC SOIL, the applied assessment factors (AFs) range from a factor of 1 to 1,000. The choice of AF depends on the level of information available. Since DBDPEthane was evaluated using three species from three trophic levels, a 10-fold AF was applied to the lowest NOEC - that is, the height and dry weight NOEC of 1,563 mg/kg soil (dry weight) identified with onions. PNEC SOIL = $1,563 \text{ mg/kg} \div 10 \text{ AF} = 156.3 \text{ mg/kg soil (dry weight)}$. |
| PNEC STP: 2500 mg/L | 1 | Extrapolation method: assessment factor For deriving the PNEC STP, the REACH Guidance recommends using an NOEC or EC10 from a soil nitrification test instead of an NOEC or EC10 for a sewage sludge respiration inhibition test because of the greater sensitivity of the nitrification endpoint. When using a NOEC, the REACH Guidance requires the application of an assessment factor (AF) equal to 1. Therefore, the PNEC STP was derived from the soil nitrification inhibition NOEC of 2,500 mg/kg as follows: PNEC STP = $2,500 \text{ mg/kg} \div 1 \text{ AF} = 2,500 \text{ mg/kg soil (dry weight)}$. |
| PNEC oral: 222 mg/kg food | 90 | DBDPEthane is not expected to bioaccumulate, and therefore a PNEC-oral for secondary poisoning is not needed. However, a PNEC-oral was calculated for illustrative purposes. The PNEC-oral was calculated using the REACH Guidance and based on a rat oral 90-d NOAEL of 1000 mg/kg bw/d. The NOEC mammal-food-chronic of 0.02 kg/kg bw/d was derived by multiplying the rat 90-d NOAEL (0.001 kg/kg bw/d) by the conversion factor (20) given for rats > 6 weeks of age. This value was converted to the PNEC-oral by dividing by the assessment factor of 90 (based on a study of 90 d duration). The PNEC-oral was 222 mg/kg food. |

8.2 Exposure controls:

8.2.1 Appropriate 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.

8.2.2 Individual protection measures, such as personal protective equipment:

Eye/face protection: Chemical goggles or safety glasses.

Hand protection: Wear suitable gloves resistant to chemical penetration.

Body protection: If skin contact or contamination of clothing is likely, protective clothing should be worn.

Respiratory protection: EC approved respirator fitted with high efficiency (dust, fumes, mist) filter cartridges.

Thermal hazards: Wear suitable protective clothing to prevent heat.

8.2.3 Environmental exposure controls: Avoid discharge into the environment.
According to local regulations, Federal and official regulations.

9. Physical/Chemical Properties

| | |
|---|---|
| Appearance: | Powder, solid |
| Colour: | White |
| Odour: | Odorless |
| Odour threshold: | Not available |
| pH: | Not available |
| Melting point/range (°C): | 350 °C |
| Boiling point/range (°C): | Not available |
| Flash point (°C): | Not available |
| Evaporation rate: | Not available |
| Flammability limit - lower (%): | Not available |
| Flammability (solid, gas): | Not applicable |
| Ignition temperature (°C): | Not applicable |
| Upper/lower flammability/explosive limits: | Not available |
| Vapour pressure (20°C): | < 0.0001 Pa |
| Vapour density: | Not available |
| Relative Density: | Not available |
| Bulk density (kg/m ³): | Not available |
| Water solubility (g/l): | ca. 0.72 µg/L |
| n-Octanol/Water (log Po/w): | log Pow= 3.55(25°C) |
| Auto-ignition temperature: | Not available |
| Decomposition temperature: | Not available |
| Viscosity, dynamic (mPa.s): | Not available |
| Explosive properties: | Not available |
| Oxidising properties: | Not available |
| Molecular Formula: | C ₁₄ H ₄ Br ₁₀ |
| Molecular Weight: | 971.22 |
| 9.2. Other information: | |
| Fat solubility(solvent- oil to be specified) etc: | Not available |
| Surface tension: | Not available |
| Dissociation constant in water(pKa): | Not available |
| Oxidation-reduction Potential: | Not available |
| Specific gravity: | 3.25 |

10. Stability and Reactivity Data

| | |
|--|--|
| 10.1 Reactivity: | The substance is stable under normal storage and handling conditions. |
| 10.2 Chemical stability: | Stable at room temperature in closed containers under normal storage and handling conditions. |
| 10.3 Possibility of hazardous reactions: | No dangerous reactions known. |
| 10.4 Conditions to avoid: | Incompatible materials. Dust generation, moisture. Avoid temperatures above 320°C. |
| 10.5 Incompatible materials: | Strong bases, strong acids. |
| 10.6 Hazardous decomposition products: | When heated to decomposition, emits toxic fumes of hydrobromic acid, bromine and oxides of carbon. |

11. Toxicological information

11.1 Toxicokinetics, metabolism and distribution:

Non-human toxicological data:

Basic toxicokinetics

The potential absorption and elimination of DBDPETHane has been studied in in vivo and in vitro systems. The absorption, distribution, metabolism and elimination of DBDPETHane (1000 mg/kg; 50 µCi/kg) were studied in Sprague-Dawley rats following a single oral dose of 14C-DBDPETHane. No 14C-activity was detectable in the plasma, bile or urine of treated rats at any time point (up to 168 hours post-dosing). A mass balance could not be determined because the presence of the test article in the feces prevented combustion and subsequent quantitation of 14C-CO₂; however, levels of 14C-activity in plasma, bile, urine and cage rinses were below the limit of detection in all samples. Based on the absence of 14C-activity in these samples, the majority of the administered dose was not recovered and indicates that the test article was not orally absorbed and excreted in the feces. DBDPETHane was very poorly, if at all, absorbed from the gastrointestinal tract, and was subsequently eliminated in the feces. No or negligible absorption is consistent with the poor solubility and high molecular weight of the test article.

In an in vitro system commonly used by the pharmaceutical industry in drug development, DBDPEthane had very poor solubility such that the tests in vitro cell systems could not be performed. DBDPEthane's poor solubility in organic solvent and the aqueous buffer system used with the cell cultures suggests it will have limited ability to permeate cells. A substance must first be in solution prior to being absorbed or metabolically transformed by intracellular enzymes. DBDPEthane's limited solubility will impact its absorption and potential for bioaccumulation and metabolic transformation. Based on these results, the substance does not have bioaccumulation potential. The following information is taken into account for any hazard / risk assessment:

Rat pharmacokinetic study. In vitro system used by the pharmaceutical industry in drug development.

Value used for CSA: no bioaccumulation potential

11.2 Information on toxicological effects:

Acute toxicity:

| | |
|------------------------|-----------------|
| LD50(Oral, Rat): | > 5000 mg/kg bw |
| LD50(Dermal, Rabbit): | > 2000 mg/kg bw |
| LC50(Inhalation, Rat): | Not available |

Skin corrosion/Irritation:

Not classified.

Serious eye damage/irritation:

Not classified.

Respiratory or skin sensitization:

Not classified.

Germ cell mutagenicity:

Not classified.

Carcinogenicity:

Not classified.

Reproductive toxicity:

Not classified.

STOT- single exposure:

Not classified

STOT-repeated exposure:

Not classified

12. Ecological information

Toxicity:

| Acute toxicity | Time | Species | Method | | Evaluation | Remarks |
|----------------|------------|---------|---------|----------|------------|---------|
| NOELR | ≥ 110 mg/L | 96h | Fish | OECD 203 | N/A | N/A |
| EL50 | ≥ 110 mg/L | 48h | Daphnia | OECD 202 | N/A | N/A |
| EL50 | 110 mg/L | 96h | Igae | OECD 201 | N/A | N/A |

Persistence and degradability:

It was not readily biodegradable by activated sewage sludge over a 28-day period when tested under Japanese MITI/OECD.

Bioaccumulative potential:

Not expected to bioconcentrate or bioaccumulate.

Mobility in soil:

No data available.

Results of PBT&vPvB assessment:

DBDPEthane is persistent. It is not bioaccumulative or toxic.

Other adverse effects:

Do not empty into drains.

13. Disposal considerations

13.1 Waste treatment methods:

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

13.2 Product / Packaging disposal:

If empty container retains product residues, all label precautions must be observed. Return for reuse or dispose according to national or local regulations.

14. Transport information

Land transport(ADR/RID)

UN-Number
UN Proper shipping name
Transport hazard Class
Packaging group
Environmental hazards

Sea transport (IMDG)

Not regulated
Not regulated
Not regulated
Not regulated
No

Air transport (ICAO/IATA)

Not regulated
Not regulated
Not regulated
Not regulated
No

| | | | |
|--|-----------------|-----------------|-----------------|
| Special precautions for user | See section 2.2 | See section 2.2 | See section 2.2 |
| Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code | Not regulated | Not regulated | Not regulated |

15. Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:

| | | | |
|--|--|---|----|
| Relevant information regarding authorization: | Not applicable. | | |
| Relevant information regarding restriction: | Not applicable. | | |
| Other EU regulations: | Employment restrictions concerning young person must be observed. For use only by technically qualified individuals. | | |
| Other National regulations: | Not applicable | | |
| Chemical Safety Assessment has been carried out? | YES | X | NO |

16. Other information

16.1 Indication of changes: Version 2.0 Placed exposure scenarios in the Annex (eSDS)

16.2 Relevant R- phrases (number and full text):

Not applicable.

16.3 Training instructions:

Not applicable.

16.4 Further information:

This information is based upon the present state of our knowledge. This ESDS has been compiled and is solely intended for this product.

16.5 Notice to reader:

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgment of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

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CHEMICALCOMPOSITION

Decabromodiphenyl ethane(DBDPE)

| Chemical Name (IUPAC Name or CA Index Name) | CAS NO. | % |
|---|------------|-------------|
| Decabromodiphenyl ethane | 84852-53-9 | 99.2% |
| Nonabromodiphenyl ethane and other microimpurity compound | | 0.8% |
| TOTAL | | 100% |

We certify that the above product is composed of the following ingredients and does not have any other components.

OCEANCHEM GROUP LIMITED.

Fangzi, Weifang, Shandong,
China, 261200

Jan. 2017



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Jan.12th,2015

关于十溴二苯乙烷产品 ROHS 标准要求的证明书
Certificate of Compliance RoHS Regard to DBDPE

To:The Customer of DBDPE of Oceanchem Group Limited.

Re: DBDPE compliance RoHS .

We hereby Certify that **Decabromodiphenyl Ethane(DBDPE)** which produced by Oceanchem Group Limited, and exported by us is completely comply with the RoHS Regulation.

Recently, DBDPE is exported to around the world, and We usually to issue the Certificate of Heavy Metals content(Tested by SGS ,China), The Results of Lead,Mercury,Hexavalent Chromium, Polybrominated Biphenyls(PBB),Polybrominated Diphenyl Ethers(PBDE) comply with the limits as set by RoHS Directive 2011/65/EU Annex II; Recasting 2002/95/EC. US Coalition of Northeastern Governors(CONEG) or EU Directives on Packaging Waste(94/62/EEC) and End-of-life Vehicles(2000/53/EEC).

According ECHA 13 modified 17/12/2014 with new alarming substances.

We promise that the DBDPE from us – Oceanchem Group Limited comply with the RoHS Regulation.

Stamp/Signature:

For and on behalf of
OCEANCHEM GROUP LIMITED
吉賽化學有限公司

.....
Authorized Signature(s)