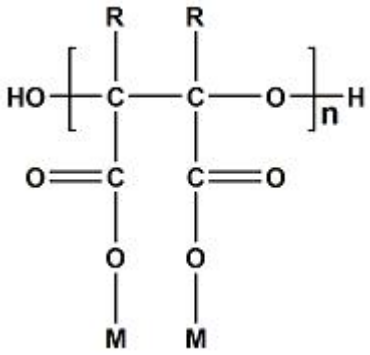
# Polyepoxysuccinic Acid (PESA)

| | | | |
|---|---|---|---|
| **CAS No.** | 51274-37-4,109578-44-1 | **EINECS No.** | 682-267-9 |
| **Molecular Formula** | $HO(C_4H_2O_5M_2)_nH$ | **Molecular Weight** | 400-1500 |

**Structural Formula**




**Notes: n=2-10**
**M--- Na $^+$or $H^+$ ,$K^+$, $NH_4^+$**
**R---- H or $C_{1-4}$ alkyl**

## Product Features

PESA is a green water-soluble polymer with non-phosphor and non-nitrogenn. PESA has good scale inhibition and dispersion properties on calcium carbonate, calcium sulfate, barium sulfate, strontium sulfate, calcium fluoride and silicon scale in water, and has good synergistic effect with phosphonate.

PESA is biodegradable and has a wide range of applications, especially for cooling water systems under high alkali, high hardness and high pH conditions, and can achieve high concentration multiple operation. PESA has good compatibility with chlorine and compatibility with other agents.

## Technical Specification

| Parameter | Standard | |
|---|---|---|
| | **Liquid** | **Solid** |
| Appearance | Colorless or Amber transparent liquid | White powder |
| Solid content, % | 40.0 min | 90.0 min |
| Density (20℃), g/cm$^3$ | 1.30 min | - |
| pH (1% water solution) | 10.0 - 12.0 | 10.0 - 12.0 |

## Applications & Usage

PESA can be used as a calcium carbonate dispersant, and can also be used in the processing process of paper, paint, ink, coatings, daily chemical industry and other industries. The addition of PESA improves the fluidity of calcium carbonate suspension, improves the surface properties of calcium carbonate, reduces the surface energy of particles, improves the affinity with the dispersion medium, effectively inhibits the agglomeration of particles, thereby increasing its dispersion performance and making it evenly dispersed in the body.

PESA is widely used in the textile printing and dyeing field, which can improve the boiling effect significantly. In the process of desizing, boiling, bleaching and dyeing, the influence of Ca2+, Mg2+, Fe2+ and other metal ions on product quality can be reduced.

PESA can significantly improve the whiteness and eliminate the macular phenomenon.

PESA is suitable for oilfield water injection, boiler water treatment and other fields, suitable for circulating cooling water system in steel, petrochemical, electric power, medicine and other industries; PESA is especially suitable for boiler water treatment, circulating cooling water treatment, seawater desalination, membrane separation and other fields of high alkalinity, high hardness, high pH and high concentration ratio system, suitable for detergent industry.

## Package & Storage

| PESA Solid | | PESA Liquid | | | |
|---|---|---|---|---|---|
| 25kg Bag | Bulk Bag | 25L Drum | 200L Drum | 1000L IBC | ISO Tank |
|  |  |  |  |  |  |
| Storage for 10 months in shady room and dry place. | | | | | |

## Hazard & Safety Precaution

| Hazard Information | Safety Precaution |
|---|---|
|  Corrosive, Class 8, UN 3267 |  |
| Once contacted with eye and skin, flush with plenty of clean water. | |

## Alternative Name / Synonyms

- PESA;
- Polyepoxysuccinic Acid;
- Polyepoxysuccinic Acid(PESA);
- Epoxysuccinic Acid Homopolymer;
- 2,3-Oxiranedicarboxylic Acid Homopolymer;
- Poly(1-Oxacyclopropane-2,3-Dicarboxylic Acid)