

K.SORB 944

High molecular weight hindered amine light stabilizer (HALS)

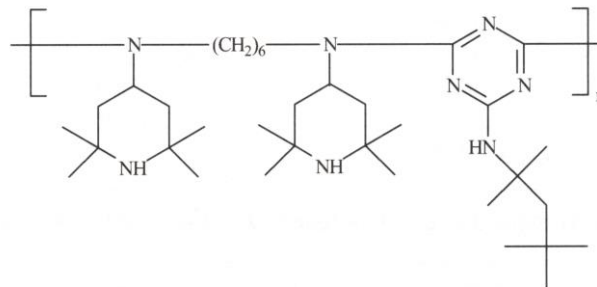
CHEMICAL NAME

Poly{[6-[(1,1,3,3-tetramethylbutyl)amino]-1,3,5-triazine-2,4-diyl][2,2,6,6-tetramethyl-4-piperidiny]imino]-1,6-hexanediyl[(2,2,6,6-tetramethyl-4-piperidiny]imino)]}

CAS NUMBER

71878-19-8

STRUCTURE



MOLECULAR WEIGHT

2600-3300 Dalton

CHARACTERIZATION

K.SORB 944 is a polymeric HALS characterized by low volatility, high resistance to extraction, high thermal stability and excellent compatibility with many substrates. Its oligomeric structure makes it particularly effective when used in thin section articles such as fibers and films.

Its stabilization mechanism, self regenerating, includes the decomposition of the alkylperoxy radicals and the scavenging of the alkyl free radicals produced into the polymer by the combined attack of UV rays and atmospheric oxygen.

K.SORB 944's performance is highly superior to that of the classic UV absorbers. It is generally not influenced by pigments or fillers (if free of transition metals ions) and may be further enhanced by the synergistic combination with UVAs themselves and organophosphites. Laboratory pre-trials are however mandatory to control colour development or reduced stabilization performance.

Moreover, the efficacy of **K.SORB 944** (which contains unsubstituted >NH functional groups) can be negatively influenced by compounds containing sulphur or halogens (like thioethers, fire-retarding additives, or particular pigments) and by acidic substances. Here again, such influence on processing, colour and end-use must be determined by preliminary lab tests.

**PHYSICAL
PROPERTIES**

| | |
|--|-----------------------------|
| Appearance | White low dust powder/beads |
| Melting range (capillary) | 100-135°C |
| Volatiles (2h @ 105°C) | ≤ 1.0 % |
| Ash | ≤ 0.1 % |
| Transmittance % (solution of 10 g /100 ml toluene, 1 cm cell) | |
| @ 425 nm | ≥ 92 % |
| @ 450 nm | ≥ 95 % |
| Specific gravity @ 20°C | 1.01 g/cm ³ |
| Flash point | >160 °C |
| Volatility, % weight loss (TGA-analysis, heating rate 20°C/min in air) | |
| | 0.2% at 275°C |
| | 10% at 350°C |
| Solubility @ 20°C (g/100 ml solvent) | |
| Xilene | >50 |
| Chloroform | >30 |
| Acetone | >50 |
| Toluene | >50 |
| Ethyl acetate | >50 |
| Hexane | >40 |
| Methanol | 3 |
| Water | <0.01 |

PACKAGING

K.SORB 944 is supplied in 25 Kg net paper drums

TOXICOLOGY

| | |
|--------------------------------|--------------|
| Acute oral toxicity (LD50 rat) | > 2000 mg/Kg |
| Acute Skin toxicity (rat) | > 3000 mg/Kg |

STORAGE—HANDLING

K.SORB 944 must be stored in a dry and ventilated cool place, in securely closed drums. Maximum recommended storage time under suitable condition (dry and cool): 5 years. Protect eyes and face and use gloves when handling the product. For detailed information on toxicity, storage and handling please refer to the relevant Material Safety Data Sheet.

APPLICATION

K.SORB 944 is recommended for use in PP, LDPE, HDPE, XPE, EVA and PP blends with elastomers. It is also highly effective in PA, POM, PU and PVC. In many instances its efficacy can be synergistically raised by either oligomeric or L.M.W. HALS, classic UV absorbers and organophosphites.

K.SORB 944 does not affect the polymers' colour, in particular if combined with an organophosphite and if the polymer is BHT-free.

ADDITION LEVELS

Taking into account the type of polymer, the type and amount of pigments, fillers, synergistic additives and the expected service life, **K.SORB 944** should be used at 0.10 to 1.00 phr. Extensive performance data of **K.SORB 944** in various polymers and specific application areas are available upon request.

The information submitted in this publication is based on our current knowledge and experience. In view of the many factors that may affect processing and application, this data does not relieve processors from the responsibility of carrying out their own tests and experiments. Neither do they imply any legally binding assurance of certain properties or of suitability for a specific purpose. It is the responsibility of those to whom K Chimica supply their own products to ensure that any proprietary rights or patents and existing laws and legislation are observed. The product has not been tested for, and is therefore not recommended for, uses for which prolonged contact with mucous membranes, abraded skin, or blood is intended; or for uses for which implantation within the human body is intended.