

# K.SORB 292

## Liquid Hindered Amine Light Stabilizer (HALS)

### CHEMICAL NAME

Mixture of

Component A: Bis (1,2,2,6,6-pentamethyl-4-piperidyl)sebacate (70 – 80%)

Component B: Methyl(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate (30 – 20%)

### CAS NUMBER

41556-26-7

82919-37-7

### EINECS NUMBER

2554371

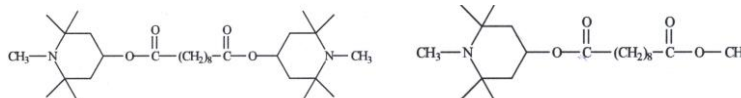
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### MOLECULAR FORMULA

C<sub>30</sub>H<sub>56</sub>N<sub>2</sub>O<sub>4</sub>

C<sub>21</sub>H<sub>39</sub>NO<sub>4</sub>

### STRUCTURE



### MOLECULAR WEIGHT

508,8 Dalton

369,5 Dalton

### CHARACTERIZATION

**K.SORB 292**, a solvent free liquid ester mixture, belongs to the sterically hindered cyclic amine class of light stabilizers for polymers and coatings. It is used to prevent or considerably reduce the photo-oxidative degradation (in terms of loss of mechanical and aesthetic properties) of plastic or coated articles exposed outdoors to the destructive action of the sun's UV rays.

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 292'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.

The performance of **K.SORB 292** (which contains NCH3 functional groups) is not strongly affected by acid substances, as may instead occur with K.SORB 770 (see the relevant Bulletin). Therefore its use is especially recommended if the plastic end product or coating will come into contact, either internally (other additives) or externally during use, with acid compounds. However, such influence on processing, colour and end-use must be carefully determined by preliminary lab tests.

## CHEMICAL-PHYSICAL PROPERTIES

Appearance	Pale yellow viscous liquid
Odour	Ester-like
Assay (GC)	≥ 96 %
Ash	≤ 0,1
Transmittance % (solution of 10 g /100 ml toluene, 1 cm cell)	
@ 425 nm	≥ 95 %
@ 500 nm	≥ 98 %
Density @ 20°C	0,99 g/cm <sup>3</sup>
Freezing point	< 0°C
Dynamic viscosity @ 20°C	≈ 400 mPa x s
pH (1% water suspension @ 20°C)	< 9
Vapour pressure @ 20°C	1.0 x 10 <sup>-4</sup> Pa
Flash point (DIN 51758)	117°C
Ignition point (DIN 51794)	380°C
Decomposition temperature	325°C
Volatility, % weight loss (TGA-analysis, heating rate 20°C/min in air)	
	1% at 225°C
	10% at 275°C
Solubility @ 20°C (g/100 ml solvent)	
Methylene Chloride	> 50
Toluene	> 50
Ethyl glycol	> 50
Butanol	> 50
Ethyl acetate	> 50
Acetone	>50
Hexane	>50
MEK	>50
DMF	>50
PU polyols	>50
Water	< 0.01

## PACKAGING

**K.SORB 292** is supplied in 25kg plastic drums and in 1000Kg IBC.

## TOXICOLOGY

Acute oral toxicity (LD50 rat)	> 2000 mg/Kg
Skin irritation (rabbit)	Non irritant
Eye irritation (rabbit)	Not irritant
Skin sensitisation (Guinea pig)	Sensitising

**STORAGE –HANDLING**

**K.SORB 292** 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. During storage below 0°C K.SORB 292 may crystallize: the product can easily liquefied by warming the drum at 35° – 40°C. For detailed information on toxicity, storage and handling please refer to the relevant Material Safety Data Sheet.

**APPLICATION**

**K.SORB 292** is one of the most powerful light stabilizer for PP and HDPE (thick sections and raffia), styrene copolymers (ABS, SAN, HIPS), PMMA, one and two component PU, POM, TR (SBS, SIS, SEBS). It is however outstandingly suitable (when you can take advantage of its liquid form, its excellent solubility in solvent and PU polyols and its easy emulsifiability in water) for the light stabilization of two component PU, cast PMMA and polybutadiene latex (ABS).

**K.SORB 292** does not affect the polymers' colour, in particular if combined with an organophosphite and if the polymer is BHT-free. As a low molecular weight compound, K.SORB 292 should preferably not be used in thin section articles such as LDPE films and olefinic fibres, since blooming and extraction problems may occur.

**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 292 should be used at 0.10 to 1 phr. Extensive performance data of K.SORB 292 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.