Monomeric plasticizer offering permanence that approximates polymerics'

Santicizer 261

alkyl benzyl phthalate

General Description

Santicizer® 261 is a monomeric plasticizer that offers high performance, comparable to low molecular weight polymerics, yet still retains the easy processing features of monomeric plasticizers. It finds application in film and sheeting, coated fabrics, plastisols, organosols, vinyl foams, and acrylic lacquers.

In acrylic coatings, Santicizer 261 imparts excellent durability, anti-fogging properties, better adhesion to metal undercoats, improved weather-ability, and good solvent-craze resistance. It imparts excellent gloss, resists water spotting, provides good flow characteristics and flexibility without brittleness for a long, handsome coating life. The low volatility and greater permanence makes Santicizer 261 the preferred modifier for acrylic coatings that must have a long service life and/or must endure under high temperature exposure.

In vinyl plastisols and organosols, Santicizer 261 provides relatively low initial viscosity and adequate viscosity stability. It offers fast fusion at normal temperatures, low volatility and permanence in finished vinyl products.

In calendering and extrusions, Santicizer 261 combines the efficiency of monomeric esters with the permanence of low molecular weight polymerics and offers the excellent processing characteristics of the benzyl phthalate type plasticizers. With Santicizer 261, vinyl compounders can obtain oil, kerosene, and gasoline resistance that is better than obtainable with low molecular weight polymerics or high molecular weight monomerics.

In vinyl foams, Santicizer 261 provides a good combination of fusion and rheology properties that produce excellent cell structure. Its low volatility helps maintain a permanent, dimensionally stable foam.

Santicizer 261 is of a low order of toxicity and requires no special handling precautions.

Properties

Molecular Weight	368
• Acidity (meq/100 gm. max)	0.24
• Appearance	Clear, oily liquid
• Color (APHA) [max.]	75
• Moisture (KF in Methanol) %, max.	0.15
Odor	Slight, characteristic
• Refractive Index (@ 25°C)	1.523–1.529
• Specific Gravity (25°/25°C)	1.065–1.074
Density (@ 25°C) ca, lbs./gal.	8.9
Pour Point (°C)	−45
Boiling Point @ 10mm Hg, °C	252
Vapor Pressure (mm Hg)	
@ 200°C	0.5
@ 250°C	9.7
Viscosity (Centistokes)	
@ 25°C	53
@ 98.9°C	4.2
Surface Tension @ 24°C (dynes/cm)	35.3
Thermal Expansion Coefficient @ 10°–40°C (cc/cc/°C)	0.00059
Flash Point (C.O.C.) [°F.]	445
Fire Point (C.O.C.) [°F.]	—
Solubility In Water @ 25°C, %	<−0.01

• *Specification*

DSW 587331

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Santicizer 261 — properties of acrylic lacquers

Plasticizer (at 29%)	Hardness[1]	Weatherometer Gloss/ Reflectance		Fog[2] Value	Adhesion[3]	Solvent 5°C.	Craze[4] 10°C.	Water[5] Immers.
Santicizer® 160	F/H	Std.	Std.	37 SR	4	checked	checked	Std.
Santicizer 261	F/H	+	+	66 SR	6	checked	OK	Equiv.

1. Pencil Hardness — The film is harder than the top letter, softer than the bottom letter.
2. Specular Reflection (SR) of plate glass covers over beakers in which the plasticized films were heated for 1 hr. @ 110°C.
3. Cellophane tape method.
4. Coated panels conditioned at 5 and 10°C. — a drop of methyl ethyl ketone was applied and allowed to dry. Crazing determined by visual observation (with magnifying lens).
5. Panels immersed in water at 40°C. for 100 hours — rated by ASTM test D-714.

Santicizer 261 — performance in PVC

	Santicizer 261 @		
	30% 43 PHR	40% 67 PHR	50% 100 PHR
Volatility, 87°C	2.1	2.1	2.3
Low-temperature flex, Tf°C	–7	–26	–40
Water extraction	0.02	0.07	0.08
Kerosene extraction	1.0	3.8	8.8
Shore "A" hardness	89	71	54

Santicizer 261 — performance in plastisol formulation

Formulation: Opalon 410, 100 parts; Santicizer 261, 65 parts

Viscosity, poises Brookfield HAT #6 Spindle

50 RPM		
23°C	Initial	63
	7 Days	74
	28 Days	86
40°C	Initial	32
	7 Days	110
	28 Days	170
50°C	Initial	36
	7 Days	150
	28 Days	Gel
Severs	10 psi	160
	50 psi	230
	100 psi	180
Yield Value, dynes/cm²		28
Flow Index		3.6
Gel Temperature, °C		94
Fusion, Relative Temperature, °C		159

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