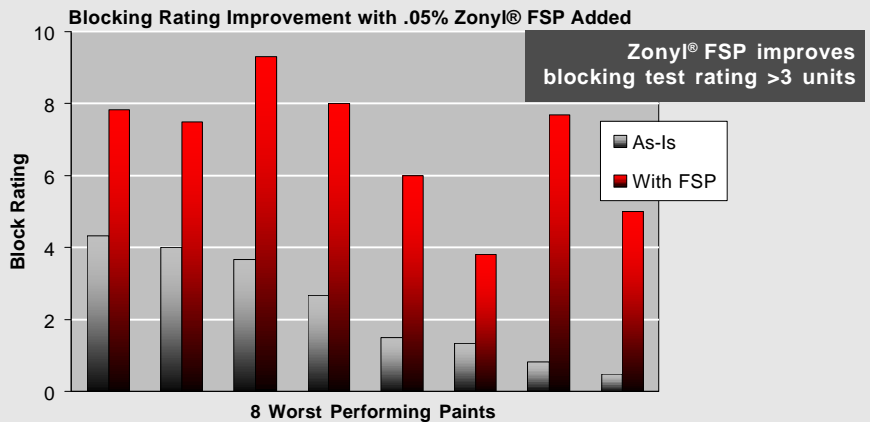
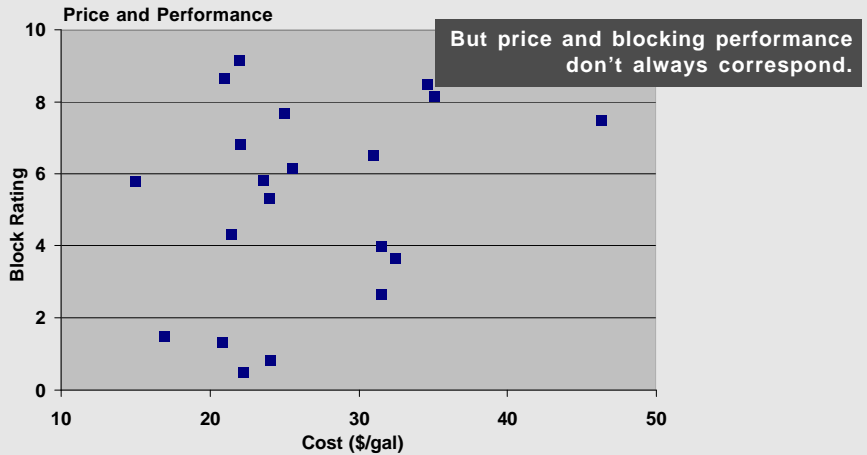
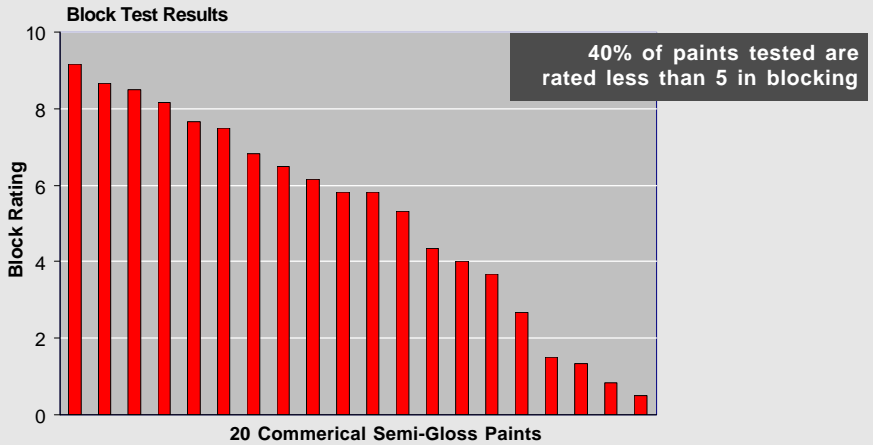


DuPont™ Zonyl® Fluoroadditives as Antiblock Agents

DuPont™ Zonyl® fluoroadditives are very effective antiblock agents for paints and coatings by reducing the damage caused when newly painted surfaces stick together. This performance feature, in addition to preventing surface defects and wetting hard-to-wet surfaces, makes them a useful formulation tool in many coating applications.

A Comparative Study

A blocking study was conducted on 20 leading-brand semi-gloss and high-gloss latex architectural paints to demonstrate the performance of Zonyl® fluoroadditive products as antiblock additives. Each fluoroadditive was tested at 0.05 wt % (0.018% active ingredient) on wet paint formulation. The blocking study was done using a room temperature modification of ASTM method D 4946-89.



Comparison with Other Anti-blocking Additives

Blocking data for two leading latex house paints with and without Zonyl® fluorosurfactants added to them. Loading levels were adjusted to give approximately equal amounts of fluorosurfactant active ingredient. For comparison, a silicone antiblock additive and a wax antiblock additive were also evaluated in this test at loadings recommended by the respective product manufacturers. Both the standard ASTM 4946 method and the room temperature modification of the method were used.

Table 1

Additive	Loading	Block Ratings			
		Interior Semi-gloss Latex		Interior High Gloss Latex	
		Oven Test	R.T. Test	Oven Test	R.T. Test
None	None	2.3	5.5	7.2	6.7
Zonyl® FSP ^(a)	0.05	6.7	9.7	8.5	9.0
Zonyl® 8952 ^(a)	0.13	5.3	9.0	8.0	9.7
Zonyl® FSJ ^(a)	0.07	8.7	9.0	8.3	8.5
Zonyl® 9361 ^(a)	0.05	6.7	8.8	8.0	6.8
Dow Corning® 19 ^(b)	0.3	5.7	4.8	6.3	2.0
ME98040M2 ^(c)	6.25	2.7	5.5	7.0	3.7

^(a) Fluorosurfactant, DuPont

^(b) Silicone Surfactant, Dow Corning Corp.

^(c) Wax emulsion, Michelman, Inc.

Zonyl® fluorosurfactants significantly improved the block resistance of these paints. The semigloss paint (without additives) sealed and tore when the two samples were pulled apart after the oven test. Addition of the fluorosurfactants improved the block ratings by 3 to 6.5 units, and prevented the painted surfaces from being damaged. In the room temperature test, the fluorosurfactants improved block ratings to 9 and above, indicating that the painted surfaces exhibited almost no 'tackiness' at all. In contrast, the wax additive demonstrated no improvement in either test, and the silicone additive improved blocking only in the oven test and not in the room temperature test.

Cost Implications

In all the testing shown in Table 1, \$.11 to \$.24 of Zonyl® fluoroadditive was added to a gallon of paint, weighing 10 lbs/gal or 1.2 kg/l. Versus other additives, Zonyl® fluoroadditives provide excellent value-in use as shown in this table.

Table 2

Attribute	Type of Zonyl®			
	FSP	FSJ	9361	8952
Cost per Gallon (\$)	.17	.15	.11	.24
Cost per Liter (\$)	.05	.04	.03	.06

Learn More

Find out how Zonyl® Fluoroadditives can improve block resistance in your coatings. Visit our website, www.dupont.com/zonyl, or call 1-866-828-7009 for samples, literature, or technical assistance.



The miracles of science™