

S-44 HRD

**MATTE, LOW—GLOSS
HARD COATING FOR
POLYCARBONATE AND ACRYLIC**

PRODUCT DESCRIPTION

S-44 HRD is an opaque and liquid sol-gel solution that cures when exposed to thermal processing system. The synthesis is based on a modified sol-gel process. S-44 HRD is an abrasion resistant silicone hard coating intended for spray application. It provides a matte surface possessing good scratch and abrasion resistance.

KEY PERFORMANCE PROPERTIES

Low—gloss, matte finish
Thermal curing type
Abrasion and scratch resistant
Solvent and chemical resistant

TYPICAL APPLICATIONS

S-44 HRD is designed for surface hard coating of polycarbonate, acrylic, and polyester sheet, lenses, and other molded devices requiring a low-gloss finish. Selected applications included viewing windows, instrument panels, and flat panel displays.

TYPICAL LIQUID PROPERTIES

Properties	S-44 HRD
Main Component	Organic modified Silicone
Appearance	Clear Liquid
Viscosity@25°C(cP)	22 ~ 25
Density@25°C	0.920
Solids Level (%)	21.5 — 22.5
pH	4 ~ 5

- For safety details, please refer to the MSDS provided.

APPLICATION METHOD

Coating Methods :	spray <u>only</u>
Useable solvents :	Isobutanol
Working temperature condition :	18°C ~ 27°C
Working Relative humidity condition :	below 70%
Useable filter / filter pore size :	polyolefin, PTFE / 5 – 10µ

Directions for Use: The addition of HRD-44 Matte Silicone Additive effectively reduces the gloss of the applied coating. HRD-44 Matte Additive is dispersed into the coating solution until homogeneous, filtered, and used. NOTE: Do not filter through less than 5 micron filtration media. *Please refer to the Material Process Specification for further instructions.*

SUBSTRATE PREPARATION

Cleaning process		Conditions	
Cleaning	Isobutanol / LD Naphtha* (90:10) *heptane or LD Naphtha	25°C	2 ~ 5 min.
Destaticize	De-staticized air		
Cleaning	Small molded articles and lenses: submersion bath. Large, flat panels: manually wiped with cleaning solvent.		
Drying	Infra-Red oven	30 ~ 40°C	5 ~ 10 min.
Destaticize	De-staticized air		

CURE CONDITIONS

Thermal curing process		Conditions	
1 st Drying	Solvent flash time	25°C	10 min.
2 nd Curing	Thermal curing on Lexan polycarbonate	122°C	35 min.

SPRAY PARAMETERS

@ 35 psi

Film Thickness : ~ 0.5 — 1.2µ

CURED FILM PROPERTIES

Property	Method	Values
Gloss Range	Reflectance Spectroscopy*	3.5 — 120
Adhesion	ASTM D3359-87	100/100
Chemical/solvent resistance	Acetone	Pass
	Isopropanol	Pass

* measured with **micro-TRI-gloss meter** Catalog # GB-4522, manuf. By BYK-Gardner, MD USA. (301)488-6500.

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