

GLYCONOL[®]

N, N'-1,2-Ethanediybis(isooctadecan -1-amide)

CAS # 63059-78-9

This industrial additive has multi-functional properties that include unique gelling and viscosity modifying in wax and plastic materials.

TYPICAL PHYSICAL PROPERTIES

Appearance	Amber colored, soft waxy solid
Color (Gardner, melt)	20 Max.
Clarity (melt)	Clear
Penetrometer Hardness (cm @ 200g/min.)	1.73
Melting Point (°C)	100 – 108

FUNCTIONS

Viscosity Modifier – Gellant: In liquids, Glyconol imparts thickening and gelation at low percentage additions

Plasticizer: In waxes and wax resin blends, Glyconol reduces low temperature embrittlement and cracking, increases the service temperature range of the product.

Lubricant: Because of its unique chemical structure, Glyconol possesses physical and mechanical properties that enable it to perform well as a lubricant in the broadest sense of the word. In applications involving metal to metal contact, Glyconol is best used as an additive to the basic lubricating medium. It toughens the lubricating film and improves its adhesion to the metal surface, extending the life and service range in extreme pressure applications. Glyconol also acts as an anti-flocculent or anti-precipitant to prevent the separation of fatty substances that frequently occur with a drop in lube temperature.

In plastic applications Glyconol functions as both an internal and external lubricant. As an internal lubricant it promotes resin flow; lowers the power requirements for mixing, extrusion and injection molding; increases the dispersion rate of pigments and fillers. Because of its limited compatibility with most resins, it may also migrate to the surface where an extremely thin film forms to act as an external lubricant. As such, it provides good slip, mold release, and anti-block properties.

SUGGESTED APPLICATIONS

Hot Melt Coatings:

Glyconol is offered for use in hot-melt compositions made up of the following ingredients-

Ethylene/Vinyl Acetate Copolymer

Paraffin wax, fully refined

Microcrystalline Wax

Glyconol

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Glyconol would normally be added to such compositions in the amount of 5 – 10% by weight. The proportions of the other three components will vary widely depending on the finished product properties sought by the compounder.

At the recommended level, Glyconol modifies the hot-melt blend and improves its performance by –

1. Lowering the melt viscosity to improve flow and spreading of the coating.
2. Increasing the penetration and adhesion of the coating to the substrate.
3. Increasing the gloss, stability, toughness, and barrier properties of the coating.

Such hot-melt compositions are suitable for application to substrates such as paper, paperboard, glassine, leather, and metal. They are used as protective coatings, adhesives, and laminates.

Metalworking Lubricants:

Additions of less than 1% by weight of Glyconol to mineral, vegetable, and silicone oils will thicken these oils and improve their adhesion to metals. At approximately 1% by weight, gelation of these media may be obtained. Similar effects may be obtained in kerosene but the gels are syneresis and are not entirely stable.

Lubricants fortified with Glyconol are useful in metal cutting and stamping, wire drawing, and profile extrusion.

Agricultural Sprays:

Insecticides and herbicides are usually sprayed on foliage as dilute solutions in an inert carrier such as kerosene. Often the full effect of the chemical is not obtained because it will not adhere to the foliage and is easily removed by wind, rain, and abrasive forces. A small amount of Glyconol will thicken the carrier, promote gelation upon evaporation, and hold the chemical on the leaves for a longer lasting effect.

Jellied Fuels:

Napalm-like products may be prepared from kerosene or gasoline with the addition of 1 – 5% of Glyconol.

SOLUBILITY

Low to moderate solubility in most solvents and oils at ambient temperatures. High solubility in all solvents at their boiling points, also in oils at 100°C. Most hot solutions gel upon cooling. Selected solubility data are as follows:

<u>Solvent</u>	<u>Solubility g/100g</u>		
	<u>Ambient</u>	<u>At Solvent</u>	<u>Temp. °C</u>
Water	I	I	100
Ethyl Alcohol	4.8	S	78
MEK	6.8	S	79
Isopropanol	13.5	S	82
Trichloroethane	9.3	S	113
Toluene	40.5	S	110
Mineral Spirits	gel	S	154
Soybean Oil	gel	S	100
Mineral Oil	gel	S	100

I = < 0.5g solute per 100g of solvent, S = >100g solute per 100g of solvent

Oil and Solvent Gelling Properties of Glyconol

Method: Glyconol dissolved in the appropriate solvent by warming and mixing gently. Complete solubility obtained in each case unless otherwise noted. Solutions allowed to cool to ambient temperature. Cooled solutions examined after 24 hours and the appearance noted.

<u>Oils / Solvents</u>	<u>% of Glyconol by Weight</u>		
	<u>1</u>	<u>5</u>	<u>10</u>
Crisco Oil (Soybean)	G	G	G
	(Partial)		
Linseed Oil (Raw)	G	G	G
	(Partial)		
Mineral Oil (USP)	G	G	G
Motor Oil (SAE 20)	G	G	G
Silicone Oil (Dow 555)	G	G	G
Acetone	L	L	L
Benzene	L	L	L
			(Gel Sediment)
Chloroform	L	L	L
Ethyl Acetate	L	L	L
Isopropanol	L	L	L
Kerosene	G*	G*	G*
Mineral Spirits (B.P. 155-200°C)	L	G*	G*
	(Gel PPT)		
Xylene	L	L	L
	(Gel PPT)	(Gel PPT)	(Gel PPT)

G = Gel Formation

L = Liquid

* = Syneresis: gel contracts on standing and separates part of the liquid phase.