

SARTOMER

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CN9800

CN9800 is a difunctional silicone acrylate for use in UV curable formulations.

Trade name		CN9800
Typical Properties	Type	Silicone Acrylate
	Functionality	2
Viscosity @ 25°C		50-70 Pas
Appearance @ 25°C		Clear to slightly turbid viscous liquid
Colour (Gardner scale)		1-3
Refractive Index @ 25°C		1.459
Specific Gravity		1.068
Level of Addition		0.1 to 2.0%
Slip *	Dynamic	Very Good
	Static	Excellent
Gloss *		Excellent
Surface Wetting *		Excellent
Film Levelling *		Excellent
Scuff and Scratch Resistance *		Very Good
Chemical Resistance *		Excellent
Hydrophobicity *		Excellent
Release Properties *		Excellent
Anti-Blocking *		Excellent
Extractables *		Very Good
Back Contamination *		Excellent

Data shown in bottom half of table is taken from test results and practical experience.





Key properties :

- **Slip** : Dynamic (Kinetic) and especially **Static slip** of CN9800 are excellent, when compared with other silicone or silicone acrylate additives and values are often as good as those achievable with Waxes.
- **Gloss** : The **compatibility** of CN9800 gives higher levels of gloss than normally possible with Silicone or Silicone acrylate additives.
- **Wetting** : CN9800 is a superb wetting additive and allows **good film forming** on many **difficult substrates**.
- **Levelling** : CN9800 normally gives totally even film, **free from surface defects** when applied by a variety of application techniques.
- **Scuff and scratch resistance** : CN9800 is very tough and gives good surface **protection from scuffing, marring and scratching**.
- **Chemical Resistance** : CN9800 enhances the chemical resistance properties of most coatings.
- **Hydrophobicity** : A cured film containing CN9800 is very hydrophobic and will show increased **water resistance** in **outdoor applications**, or where processing such as **pasteurisation** or **sterilisation** is required.
- **Release** : CN9800 has superior **release properties**, compared to non-acrylated silicone additives, on repeated testing, because it is fully cured into the film, with **very low migratable material**. It is also superior to most other silicone acrylates.
- **Anti-blocking** : CN9800 can be used in coating formulations to prevent blocking (or **set-off**), without "backside contamination", for example in re-reeled applications, such as **coil coatings** or **web coatings**.
- **Low odour / Low extractibles** : Because it is fully reacted, CN9800 has **very low odour** properties and extractibles are also very low indeed.
- **Colour** : CN9800 has a **low colour**, compared to many of its competitors.

Silicone products can show a tendency to foaming in certain formulations.

Antifoams that are recommended for use with CN9800 include :

- *Lubrizol "Foam Blast 20F" ** (Best recommendation)
- *Tego "Foamex N"*
- *Tego "Foamex K3"*
- *Octel "Octafoam 660"*
- *Octel "Octafoam 675"*
- *Byk "020"*
- *Tego "Foamex 810"*

Anti-foam should only be used if absolutely necessary. Even then at the lowest possible addition. Care should be taken to assess film and clarity properties before continuing.

Each Formulation is different.



Uses of CN9800 :

The main uses are :

- **Coatings for Graphics applications :**

CN9800 is suitable for use in most types of overprint varnish (Roller coat, flexo, gravure, damper and duct application). Typical addition is from 0.5 to 1.0 %, but up to 2 or 3% can be used in certain cases (e.g. for release varnish on magazine covers, where gifts and CDs, etc. are taped to the cover for special promotions). The surface wetting and tape release properties of CN9800 make it suitable for use in coatings for heatset print.

It is suitable for most web applications, because it is reacted in the cured film and so does not show "backside contamination".

CN9800 has unusually good static slip properties, for a silicone based additive, so can be used as a high gloss alternative to waxes. It is often used in conjunction with other silicone additives such as Dow Corning PA57, sometimes at low levels to impart static slip. It is very compatible with a wide range of UV coating additives.

It cannot be used in Litho coatings, or where the coating will be glued or foil stamped.

- **Plastic Coatings :**

CN9800 can be used widely in plastic coatings on cosmetics plastics, CDs and DVDs, Helmets, mobile phones, automotive plastics etc. The tape release properties will give the impression of enhanced adhesion. It also imparts scratch and scuff resistance, water and chemical resistance and extremely level film surfaces. Because of its excellent compatibility, it tends to enhance gloss, where some others do not. Addition levels are typically 0.5 to 2%, and it can be used in spray and roller applications. The hydrophobicity of CN9800 means that it can extend outdoor durability.

- **Wood Coatings :**

CN9800 finds use in wood coatings for furniture. It can be added at 0.2 to 1.0 %, when it will enhance nearly all resistance properties of wood coatings, from stain resistance (water based and chemical), to scratch and scuff resistance. It is very useful for use on Melamine Impregnated Paper foils for furniture.

It is not normally suitable for flooring applications, where its slip properties are not generally desirable (and might be dangerous).

- **Metal Coatings :**

CN9800 has recently been used in formulations for spray applied pipe coatings, where its film forming properties and resistance properties allow use of a coating that could not work without it. The hydrophobic properties will protect the metal surface.

- **As a flexibilising oligomer :**

CN9800 has been used in flexible specialised silicone formulations, where its oligomeric aliphatic urethane acrylate nature, combined with other properties listed above have given properties that cannot be found by another route.

NB : Please note that CN9800 is not normally suitable for applications that are overcoated.