PRODUCT DATA

Nippon Steel

TECHNICAL BULLETIN

PRIMER FOR INSTANTANEOUS ADHESIVE

NS 770

Product Description

NS 770 cyanoacrylate adhesive primer strengthens the adhesion of Apollo adhesives to non-polar plastics such as polypropylene, santoprene and polyethylene. **NS770** also increases the bonding ability of other difficult substrates such as silicone rubber and polytetrafluoroethylene. **NS770** can be applied to surfaces by wiping, brushing, or spraying and contains no chlorinated or fluorinated solvents. After evaporation, the substrates can be bonded by **Nippon Steel adhesives**.

Physical Properties

Liquid Base Compound	Ethyl Acetate
Appearance	Colorless Liquid
Viscosity (cP @ 68°F)	1 cP
Density (g/cc)	0.798
Flash Point (TCC)	40 °F
Shelf Life @40°F	12 months unopened
Percentage Volatiles (By weight)	100% @70°F
Boiling Point	213°F
Odor	Pungent

After application of the adhesives, the bonding will occur by a short contact pressure. Polymerization will start within a short period of time; initial strength will be obtained after a few seconds. Final strength is achieved in most applications of non-polar plastics such as polyethylene, santoprene and polypropylene when using **Nippon Steel adhesives** after a cure time of 24 hours.

After application of the **NS770 primer**, the primed substrates do not have to be bonded immediately. With most applications, a storage time of several hours between primer application and adhesive application does negatively affect the final bonding strength.

Health Precautions

Skin Contact: Wash exposed areas with copious amounts of soap and water for 15-20 minutes.

Storage

NS 770 is highly flammable and should be stored away from heat, open flame, or ignition sources. Products should be stored unopened in a cool, dry place out of direct sunlight.

SAFETY

Due to the solvents involved, **NS770** is highly flammable.

TECHNICAL INFORMATION

NS770-Primer for Bonding Non-polar Plastics with Cyanoacrylate Adhesives.

Non-polar plastics such as polyethylene or polypropylene are difficult to bond without pre-treatment due to the surface tension of polyolefins. These plastics are often used due to their excellent properties whereas the bondability to adhesives is insufficient or even impossible.

Aside from flaming and etching of the materials, an oxidation of the substrates could also occur by the "Corona" or "Low Pressure Plasma" procedure. Other than the high costs, there is another disadvantage of bonding with cyanoacrylates. With some procedures, acidic fission products (dependent on the material) may arise on the surface. These residues may cause a non-polymerization or a curing delay of the cyanoacrylate adhesives. Furthermore, the activity of pre-treated surfaces decreases within a short period of time so the difficulties within continuous production processes may reduce quality and strength. Complicated jointing geometries such as plug connection with hollows can only be activated with **NS770 .**

Due to difficult bonding technique of the pre-treatment of substrates, there is an alternative to the rational bonding of non-polar materials with cyanoacrylate adhesives. **NS770 makes** it possible to achieve high strengths in order to bond non-polar materials with cyanoacrylate adhesives. **NS770** can be applied by brushing, dipping, or spraying the substrates that are difficult to bond. After evaporation a very fast curing will follow causing a high strength and aging resistant bond. The pre-treated substrates do not have to be bonded immediately; storage of the activated materials for some hours will not influence the polymerization.

After the application of **NS770 ,** a short evaporation time of 20-30 seconds, the cyanoacrylate adhesive can be applied in the usual manner such as: in drops, in a bead, manually, or automatically. After this process, a short contact pressure achieves the bond. In most applications, a few seconds are enough to achieve initial strength. After polymerization, which can take (depending on the substrates) minutes to hours, polyethylene and polypropylene often show tensile strengths of more than $6/mm^2$. Depending on the composition and thickness of the plastic, the bonding strength sometimes surpasses the proper strength of the materials to be bonded.

Our tests with **NS770** have **shown** that the bonding strength on other substrates difficult to bond such as polytetrafluoroethylene, silicone rubber and thermoplastic elastomers can be drastically increased. An advantage of **NS770** is **that** pre-treated substrates can be bonded after a short evaporation time. Extensive tests have shown that the joint parts can be intermediately stored after evaporation of the solvent without a negative impact on the bonding strength.