

Adhesion Promoter (Low Solid)

Adhesion Problems & Its solution

Typical problem of poor ink adhesion on co-extruded polypropylene or polyethylene packaging films is due to inherent low surface energy of these films. The use of oxidizing techniques, such as corona discharge treatment, often fails to enhance levels sufficiently to give full adhesion. However, by using the technique together with ADP 0010 50, you can achieve the desired level of bonding. ADP 0010 50 works by permanently bonding the ink to the polymer film via a cross-linking mechanism (adhesive bonding). Cross-linking also happens within the ink resin itself (cohesive bonding), which improves film properties and give advanced heat stability, solvent and water resistance.

ADP 0010 50 ensure this cross-linking only occurs during the rapid drying of the ink immediately after printing. This enables stable ink viscosity throughout the printing process, allowing maximum throughput and high print quality to be maintained.

Substates

ADP 0010 not only promote adhesion on co extruded oriented polypropylene but it also improves the heat resistance to the inks. This allows the film to be heat-sealed in the printed area. To obtain increased adhesion, you need to treat the film surface, usually by corona discharge. ADP 0010 also works successfully in inks for printing onto corona discharge-treated polyethylene. The resulting increased water resistance is important for deep-freeze and boil-in bag applications. ADP 0010 is also effective on NC-coated cellophane, OPP film, Shellac- washed aluminum, pearlized polypropylene and on polyethylene-coated milk cartons.

ADP 0010 50 Typical Physical and Chemical Properties

Appearance	Clear pale yellow liquid
Odour	Alcoholic
Sp. Gr. @ 30°C	0.9790
Viscosity @ 30°C in FCB4	15 - 19
Titanium Content %	8.5 +- 0.03
NVM %	50 +- 2

Suggested Application

Flexo Inks
Gravure Inks
Bopp and Co extruded polypropylene film
Ink for all types of substates

Packing Code

PAC 0111 Polyethylene closed head drums 200 Kgs Net.
PAC 0120 Polyethylene closed head drums 90 Kgs Net.
PAC 0130 Polyethylene closed head drums 50 Kgs Net.

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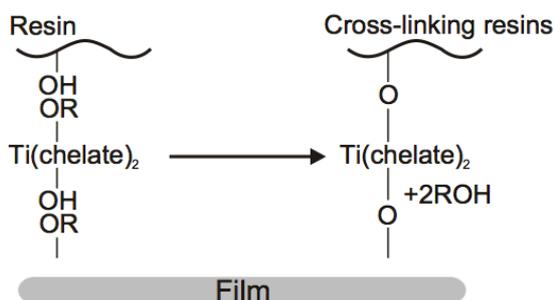
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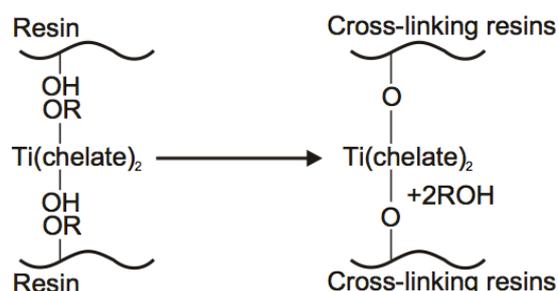
How it works?

In the molecule of ADP 0010 50 shown in the diagram, the alkoxy groups (OR) provide the cross-linking activity and the chelates control the stability of the molecule in the ink. The cross-linking process requires the presence of functional groups on the resin and on the film to which the ink must adhere. Inks resins such as nitrocellulose inherently contain hydroxyl sites on the polymer backbone, but packaging films must be treated (corona discharge) to produce hydroxyl species. The alkoxy groups of ADP 0010 50 reacts with the hydroxyl groups of both the resin and the film to form a fixed cross-link, permanently bonding the ink to the polymer surface.

Cross-linking resins to film



Cross-linking resins to resins



Ink resin systems

Nitrocellulose/ Polyurethane & Nitrocellulose/ Polyamide inks

ADP 0010 50 is effective in a variety of resin systems which have NC as the principal film former and usually, incorporated a co-binder such as polyamide or polyurethane. Demonstrable benefits are as follows .

- Low odour and reduced colour
- Improved adhesion to OPP Film
- Improved heat stability depending on the grade of OPP film used
- Reduced yellowing effects as compared to titanium acetylacetonates
- No reduction in Gloss
- Improvement in the performance of acrylics, alkyds and maleic resins used with nitrocellulose

Polyvinyl Butyral (PVB) based inks

Although adhesion of PVB based inks to polypropylene films is good, it can be improved further by addition of ADP 0010 50. The effect of ADP 0010 50 on heat stability depend on the ink formulation and substrate. Improvements can be achieved at up to 160 C. The addition of a stabilizer such as malieic acid to control the ink viscosity is important.

How and How much should they be used? ADP 0010 50 should be added at the final stage of ink manufacturing. We recommend 3% addition on weight of finished ink as a starting point – the level can be adjusted depending on the ink formulation and the performance required.