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## REDUCERS & EXTENDERS

### REDUCERS:

Reducers are vinyl compatible products that lower the viscosity of the ink and can typically be divided into two categories, curable and non-curable.

Curable reducers can fuse independently of the ink and are low viscosity neutral bases. They are effective for creating lower viscosity inks while maintaining a higher pigment concentration.

Non-curable reducers are reducers that will not fuse independently of the plastisol ink. Therefore, greater care is needed when adding them to insure the ink film will have the desired end properties (or what is referred to as physicals)

Non-curable reducers that are 100 % solids consist of vinyl compatible products added to ink to form a homogenous product that will fuse. Plasticizer reducers are very effective 100% solid non-curable reducers. Not only does additional plasticizer reduce the viscosity of an ink, it also reduces the durometer, making the film softer and more flexible.

Non-curable reducers that are partial solids may be comprised of hydrocarbons, which are solvents with low boiling temperatures. These solvents boil off during processing. Although they are extremely effective at reducing viscosity, they do have limitations. Hydrocarbons can effect the cure process of the ink. The concept is similar to the radiator in your car. Antifreeze has a low boiling temperature, when it boils, it cools. Same with the hydrocarbons in non-curable reducers, when they evaporate in the dryer, they cool the ink film. Hydrocarbons can also effect the dyes in the fabric that in turn may effect bleed.

### EXTENDERS:

**Extenders are curable neutral bases varying in viscosity and rheology. They may be added to the pigmented ink in order to extend the quantity of ink, reducing the relative cost of the product. Depending upon the amount added, they might effect opacity and color.**

**Soft hand X-tenders are a higher plasticized neutral base and are an excellent combination of both a reducer and an extender. Like other extenders and curable reducers, they will fuse by themselves, are less likely to have negative effects on the physicals of the cured ink film.**