



120 Valley Court
 Oak Ridge, TN 37830
 Ph: 865-482-5717
 FAX: 865-482-1281
 zypcoatings.com

Water Insoluble Inks

LK Ink

A white, tough, abrasion resistant water-based ink for all substrates that are compatible with pH Basic/Alkaline liquid (like house paints). Usable to 1472 F (800 C). Water insolubility requires drying at 100 C or higher, which can be achieved by spraying onto a warm substrate or using heat lamp or dryer.

LSI Ink

A white, tough water-based ink for all substrates that are compatible with pH Basic/Alkaline liquid (like housepaints). Usable to 1472 F (800 C). Water insolubility requires drying at 125 C or higher, which can be achieved by spraying onto a warm substrate or using heat lamp or dryer.

TAP Ink

A white, tough, abrasion resistant water-based ink for all substrates that are compatible with an Acidic-pH (Like lemon juice) liquid. Usable to 1472 F (800C). Water insolubility requires drying at 125 C or higher, which can be achieved by spraying onto a warm substrate or using heat lamp or dryer.

Differences and Properties of Inks

Drying for Water Insolubility

The Best of the Inks
 <=3 hrs@125C
 24 hr@100C

Next Best
 3 hrs@125C

Least of the Inks
 >=4 hrs@125C

pH

pH Basic/Alkaline

No rust spotting or flash rusting

pH Basic/Alkaline

No rust spotting or flash rusting

pH-Acidic

Rust spotting or flash rusting can occur when applied to carbon steel substrates -- if the inks are not applied to warm substrates.

Flexibility

Moderate (Least flexible)

Most Flexible

Can withstand multiple bending of the metal well

Good Flexibility

Toughness, Hardness Scratch-resistance

Very Good

Very Good

Very Good

Upper Use-Temperature

1472 F (800 C)

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Substrate Compatibility ... These inks will work on most substrates (metals, ceramics, graphite) but may delaminate ("pop-off") on cooldown if there is a large thermal expansion difference between the ink coating and the substrate. Generally this can only be determined by testing. And, as a general rule of thumb, thinner coatings are much less likely to spall off than thicker ones ... and if use-temperatures are below 600 C, this is not often a problem that is observed. Aluminum substrates are good to 600C.

Use Environments ... These inks are compatible with air, vacuum, and inert conditions.

Outgassing ... Water is the only species evolved.