

**Understanding Flux Vehicle Chemistry**

**APPLICATION NOTE**

**Resin**

- Is a modified rosin with a softening point of 100° to 125°C.
- Is a benign inert substance which is electrically non-conductive and non-hygroscopic.
- Is a favored material for soldering because it liquefies during soldering, attracts the metal salts, and then solidifies when cooled, entrapping and immobilizing the contaminants.
- Protects the surface from reoxidation before soldering occurs.
- Acts as a thermal blanket to spread heat evenly during soldering.
- Provides paste tackiness.

**Solvents**

- Dissolve all the constituents of the flux.
- Evaporate during the preheat portion of the reflow profile.
- Assist in controlling viscosity and rheology characteristics.
- Enhance stencil life & tack time when they have high boiling points.

**Activators**

- Dissolve oxides & prepare the surface for wetting by the molten solder.
- Can be one or several chemicals (referred to as an activator package).
- Are slightly active at room temperature, but the activity increases dramatically as the temperature rises.
- May be a combination of halides, amines, and acids.

**Rheological Additives**

- Effect tack, viscosity, printability, dispensability, & overall solder paste rheology.
- Assist in keeping the solder powder in suspension minimizing flux separation; solder powder and the flux/vehicle have a natural tendency to separate due to the large difference in densities.
- May also serve other specialized functions.
- May act as a surfactant to reduce foaming in a closed loop cleaning system.

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