



Ferrolite is a photo-curable iron resin that is ferromagnetic in the green unfired state. Ferrolite transitions into a fully metal iron part during sintering and is similar to a cast iron object. The parts can be polished to a shiny finish in the sintered or non-sintered states.

### **Pre-print preparation**

Use a dedicated build plate and resin tray for Ferrolite. Do not mix with other resins.

Coarse, rough build plates and supports designed with flat bases assist with build plate adhesion.

### **Printing Guidelines**

Shake or mix Ferrolite before each use. Ferrolite will gel when not mixed. Gently stir Ferrolite and it will become a smooth liquid.

Extend the exposure time duration for the first 10 - 50 layers. This helps with part adhesion to the build plate. The exposure settings will be longer than normal during the entire print. Use the longest exposure times the printer allows for pre set settings. Some experimentation for settings will be required.

Some machines may require up to 60 seconds for the first 50 layers for the best build plate adhesion.

Ferrolite resins should be printed at room temperature. Heating is not recommend unless the viscosity is too high for the printer. Keep the printing temperature as close to 24°C as possible. Do not exceed 50°C.

### **Recommended Hardware for 3D printing Ferrolite**

3D printers most suited for Ferrolite printing have a slide separation mechanism for layer separation with a wiper bar or resin mixer during printing.

### Post print process

Use standard guidelines for part removal from the build plate and supports.

Wash in an ultrasonic cleaner to remove excess resins. Use IPA as solvent to remove excess resin.

Make sure that all uncured resin is removed from the interior and exterior. Any resin that remains can cause cracks during sintering. Post UV curing ensures that all the resin is cured. A second wash after Post UV curing can help remove bits of resin.

Use dedicated cleaning equipment for Ferrolite. Do not clean other prints with Ferrolite.

### Sintering Schedule

Ferrolite is sintered in an oxidized environment with ventilation to the outside. Do not sinter Ferrolite parts with other non Ferrolite objects.

1. Ramp 25°C to 240°C, hold for 6 hours
2. Ramp 50°C to 650°C, hold for 15 minutes
3. Ramp 135°C per hour to 1100°C, hold for 1 hour

Shrinkage will occur during sintering. Average shrinkage is 6% at 1100°C with a one hour hold. To achieve uniform shrinkage it's best to have uniform wall thicknesses throughout the entire object. An object with variable wall thicknesses may not shrink uniformly.

