



D-113G.1 Water Soluble Developer

Technical Data Sheet

Description: **D-113G.1** is a powdered mixture of white particles, inhibitors, and wetting agents. When mixed with water, it forms a clear liquid. **D-113G.1** dries to a uniform white powder coating, and under black light inspection, reveals the location of cracks, pores, and similar surface flaws. Complies with low sulfur and low halogen requirements.

Chemical Properties

Color:	White Powder
Solubility:	Soluble in Water
Specific Gravity:	@ 60°F (15.6°C)
¾ lb / gallon:	1.0372
1 lb / gallon:	1.0461
1½ gallon:	1.0671

Companion Products

All fluorescent non-water washable penetrants

Packaging

25 Pound Container

Storage /Shelf Life

Keep away from moisture and sunlight.
Temperature limit: 40°F to 125°F (0-50°C)
Keep the container closed when not in use.
Shelf life from invoice date: Bulk Container – 5 Years

Specifications

SAE AMS 2644 & QPL – Form B
MIL-I-25135 Revisions D & E ASME Code NDT, Sec V

Special Features

1. **D-113G.1** increases the visibility of flaw indications.
2. **D-113G.1** fixes flaw indications to provide sharp, well defined flaw images.
3. **D-113G.1** washes easily from part surfaces with pressurized water.



4. **D-113G.1** works well on smooth or rough surfaces.
5. It can be used on machined or coated surfaces.

Instructions

Note: These instructions describe the basic process, but they may need to be amended by the user to comply with applicable specification and/or inspection criteria provided by the contracting agency.

1. **Application:** Apply **D-113G.1** only to clean, dry surfaces by spraying, flowing, brushing or dipping.
2. **Dwell Time:** A 10 minute dwell time is suggested, although in many cases five minutes will suffice. When particularly tight cracks are suspected, or the part is especially critical, the dwell time may be extended to 30 minutes, or longer. Allow the penetrant to drain from the part surface back into the penetrant tank to conserve material.
3. **Removal:** Use the appropriate washing method to remove the excess penetrant from the surface.
4. **Developing:** Mix the dry powder with water using one pound per gallon of water. Always add the powder to water while stirring. Allow 3-4 hours for complete dissolution. The specific gravity for $\frac{3}{4}$ lbs of **D-113G.1** per gallon of water at 60°F (15.6°C) is 1.0372, for 1 lb / gallon a reading 1.0461 is observed, and for 1½ lbs / gallon is a reading of 1.0671 is observed. The solution can be adjusted by adding more **D-113G.1** powder or by adding more water. Use a hydrometer to monitor the solution concentration. Briefly immerse the parts in the **D-113G.1** solution and allow excess developer to drain for a few seconds before drying.
5. **Drying:** A re-circulating oven set no higher than 160°F (71°C) is suggested. Leave the part in the oven just long enough to evaporate surface moisture. Drying is improved by using pressurized air to disperse and remove as much excess water as possible before placing the part in to the oven.
6. **Inspection:** Inspect parts under appropriate UV-A light intensity and minimal visible light.

Health & Safety

D-113G.1 is an alkaline product and may cause irritation. Avoid prolonged contact with eyes, skin, and clothing. Do not take internally. Consult the MSDS for more safety and health information.