



D-110A.1 Water Suspending Developer

Technical Data Sheet

Description: D-110A.1 is a powdered mixture of white particles, inhibitors, and wetting agents. It is mixed with water to form a suspension of white particles that dry to a uniform white powder coating. D-110A.1 developer reveals the location of cracks, pores, and similar surface flaws. D-110A.1 complies with low sulfur and low halogen requirements.

Chemical Properties

Color:	White Powder
Specific Gravity:	@ 60°F (15.6°C)
¾ lb / gallon:	1.025
½ lb / gallon:	1.038
1 gallon:	1.070

Companion Products

All fluorescent and visible 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 – 36 months

Specifications

SAE AMS 2644 & QPL – Form C

MIL-I-25135 Revisions D & E ASME Code NDT, Sec V

Special Features

1. D-110A.1 increases the visibility of flaw indications.
2. D-110A.1 fixes flaw indications to provide sharp, well defined flaw images.
3. D-110A.1 washes easily from part surfaces with pressurized water.
4. D-110A.1 works well on smooth or rough surfaces.
5. It can be used on machined or coated surfaces.
6. Works with both fluorescent and visible penetrants.



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 penetrant 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. Monitor the solution concentration with a hydrometer. The specific gravity for 1/3 lbs of **D-110A.1** /gallon at 60°F (15.6°C) equals 1.025 for a ½ lb / gallon a reading of 1.038 is observed, and for 1 lb / gallon a reading of 1.070 is observed. The suspension can be adjusted by adding more **D-110A.1** powder or by adding more water.
Under certain conditions, micro-organism may attack the **D-110A.1** suspension. Some users add sodium propionate to the tank by mixing a ½ lb of sodium propionate in a gallon of water and then mixing 1 lb of the solution to each 100 gallons of developer solution. Brief immersion is especially critical with water washable penetrants. 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.
6. **Inspection:** Inspect parts under appropriate UV-A light intensity and minimal visible light.

Health & Safety

D-110A.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.