



D-350 Hi-Temp Developer

Technical Data Sheet

Description: **D-350** is a hi-temp developer used to enhance penetrant indications on parts at elevated temperatures, temperatures up to 350⁰F (176.7⁰C). **D-350** is the developer step in a three part high temperature system (**KO-17** hi-temp penetrant and a **KO-19** hi-temp remover are the other materials of the hi-temp system). **D-350** complies with low sulfur and low halogen requirements.

Chemical Properties

Color: White Suspended Particles
Specific Gravity: 0.79
Boiling Point: 180⁰F (82⁰C)

Companion Products

KO-17 Hi-Temp Penetrant KO-19 Hi-Temp Remover

Packaging

One Gallon Cans Five Gallon Cans
16oz. Aerosol Cans (9 cans per case)

Storage /Shelf Life

Keep away from moisture and sunlight.
Temperature limit: 40⁰F to 125⁰F (0-50⁰C)
Keep the container closed when not in use.
Shelf life from invoice date: Bulk Container – 5 Years / Aerosol Can – 36 months

Specifications

MIL-I-25135 Revisions ASME Code NDT, Sec V

Special Features

1. **D-350** can be used to develop indications at elevated temperatures.
2. **D-350** meets the ASME code qualification procedure compliance.
3. **D-350** meets the requirements for low sulfur and halogen.

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 hi-temp **KO-17** penetrant by spray or brush to a limited area. The area to which the penetrant is to be applied should not be too large, so processing can be completed within penetrant and developer dwell time restraints. The size of the area will vary with inspection temperatures, part geometry, and operator experience.

2. **Dwell:** The penetrant must be allowed to dwell on the part surface to promote the penetrant time to enter any surface flaws. At higher temperatures, penetration occurs more quickly.

225 ^o – 350 ^o F (107.2 ^o C – 176.7 ^o C)	30 seconds
175 ^o – 225 ^o F (79.4 ^o C – 107.2 ^o C)	1-2 minutes
125 ^o – 175 ^o F (51.7 ^o C – 79.4 ^o C)	2-3 minutes
75 ^o – 125 ^o F (23.9 ^o C – 51.7 ^o C)	3-10 minutes
50 ^o – 75 ^o F (10 ^o C – 23.9 ^o C)	10-30 minutes

Allowances must be made for contamination levels and flaw sizes.

3. **Removal:** Wipe the surface with paper or soft clean cloth towels to remove as much **KO-17** as possible from the surface part. Spray **KO-19** remover directly onto the surface of the part in a thin coat and immediately wipe from the part surface. The part is then wiped with a water saturated towel or cloth to remove the last traces of penetrant. Finally a dry wipe is used to remove any water from the part.

4. **Drying:** Use paper or cloth toweling to dry the part's surface thoroughly. Extra drying time before applying developer to heated parts should not be required.

5. **Developing:** **D-350** developer should be sprayed on the part surface from a distance of 6-8 inches immediately after the excess penetrant has been removed and the part has dried. Apply a thin even coat, two or three thin coats are preferred to a single, heavy coat.

6. **Inspection:** Observe the surface for defect indication formation while the developer is applied. Final surface examination should begin within a minute or two after developer application. Surface examination should be completed as quickly as practical, and within ten or fifteen minutes.

Health & Safety

D-350 hi-temp penetrant should be used with adequate ventilation and away from sparks, flame, since it is applied to heated surfaces. Wear protective clothing and equipment. Avoid prolonged or repeated contact with skin. Do not take internally. Consult the MSDS for more safety and health information.