

# PROCESS DESCRIPTION PENETRANT TESTING



## 1. Precleaning

Contaminants such as scale, rust, oil, grease, paint and water shall be removed if necessary using mechanical or chemical methods, or a combination of these. Precleaning shall ensure that the test surface is free from residues and that it allows the penetrant to enter any discontinuity.



## 2. Application of penetrant

The penetrant can be applied to the part to be tested by spraying, brushing, flooding, dipping or immersion. The penetrant shall remain on the test surface throughout the entire penetration time.



## 3. Penetration time

The appropriate penetration time depends on the properties of the penetrant, the application temperature, the material of the part to be tested and the discontinuities to be detected. It is usually between 5 – 60 minutes.



## 4. Excess penetrant removal

The excess penetrant is removed from the test surface with water or approved cleaner. The excess penetrant removal shall be such that penetrant remains in the discontinuities. Control under UV light ( $\geq 100 \mu\text{W}/\text{cm}^2$  und  $< 100 \text{ lx}$ ) respectively daylight or white light ( $\geq 350 \text{ lx}$ ).



## 5. Developing

The developer shall be maintained in a uniform condition during use and shall be evenly applied to the test surface. The development times should usually be between 10 - 30 minutes. It begins immediately after application, when dry developer is applied and immediately after drying of the developer layer, when a wet developer is applied.



## 6. Inspection

Indications are produced during the developing. Inspection shall be carried out when the development time has elapsed. The indications become visible when using fluorescent penetrants under UV light ( $\geq 1000 \mu\text{W}/\text{cm}^2$  und  $< 20 \text{ lx}$ ) or when color contrast penetrants are used under daylight / white light ( $\geq 500 \text{ lx}$ ). Evaluation and documentation may be done by any adequate method.

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