SRI LANKA STANDARD 909 : PART 1 : 1990

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GLOSSARY OF

TERMS USED IN NON - DESTRUCTIVE TESTING

PART 1 - PENETRANT FLAW DETECTION

SRI LANKA STANDARDS INSTITUTION

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SLS 909 : Part 1 : 1990

Gr. 6

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SRI LANKA STANDARD

GLOSSARY OF TERMS USED IN NON-DESTRUCTIVE TESTING

PART 1 : PENETRANT FLAW DETECTION

FOREWORD

This standard was authorized for adoption and publication as a Sri Lanka Standard by the council of the Sri Lanka Standards Institution on 90-12-12 , after the draft, finalised by the Drafting Committee on Non-destructive Testing, had been approved by the Mechanical Engineering Divisional Committee.

This glossary has been prepared to promote understanding of the subject with regard to the terms encountered in technical literature and reports on non-destructive testing in general and penetrant flaw detection in particular. This glossary does not include general technical terms which are defined in other standards except in those cases where such terms have a particular application in this field of non-destructive testing.

The terms defined in this glossary are arranged alphabetically, and where two or more terms have come into use with virtually the same meaning, the term to be preferred has been selected for definition.

This glossary is published in four parts as follows :

Part 1 Penetrant flaw detection
Part 2 Magnetic particle flaw detection
Part 3 Radiological flaw detection
Part 4 Ultrasonic flaw detection

The Sri Lanka Standards Institution gratefully acknowledges the use of relevant publications of the British Standards Institution and the American Society for Testing and Materials in the preparation of this standard.

1 SCOPE

This glossary defines technical terms widely used in penetrant flaw detection method of non-destructive testing.

2 GLOSSARY

aerosol spraying	Delivery of a liquid or a suspension of fine particles in a liquid from a pressurized container.
air-accelerated spray	Liquid in the form of a spray accelerated by compressed air.
air-agitated wash	Washing in liquid agitated by air pressure.
air/water spray gun	A spray gun of the venturi type, using compressed air to deliver the water as a pressurized spray.
anti coagulants	Agents which prevent the separation and agglomeration of the dispersed phase from an emulsion, dispersion or colloidal solution.
background	In liquid penetrant examination, the surface of the test part against which the indication is viewed. It may be the natural surface or the developer coating on the surface.
background coloration	The unwanted coloration remaining after incomplete removal of a dye penetrant from the surface.
background fluorescence	The unwanted fluorescence remaining after incomplete removal of a fluorescent penetrant from the surface.
black light	See 'UV-A' .
black light filter	See 'UV-A filter'.
bleedout	The action of an entrapped liquid penetrant in surfacing from discontinuities to form indications.
blotting	In liquid penetrant examination, the action of the developer in soaking up the penetrant from the discontinuity to accelerate bleedout.
carrier fluid	A fluid that acts as a carrier for the active materials.

contrast	In liquid penetrant examination, the difference in visibility (brightness or coloration) between an indication and the background.
defect	In non-destructive examination, a discontinuity or group of discontinuities whose indications do not meet specified acceptance criteria.
degreasing fluids	See 'solvent cleaners'.
degreasing plant	Equipment used for degreasing purposes.
developer	In liquid penetrant examination, a material that is applied to the test surface to accelerate bleedout and to enhance the contrast of indications.
developer, aqueous (wet)	In liquid penetrant examination, a suspension of developer particles in water.
developer, dry	In liquid penetrant examination, a fine freeflowing developer powder.
developer, liquid film	In liquid penetrant examination, a suspension of developer particles in a carrier which leaves a resin/polymer film on the test surface after drying.
developer, nonaqueous	See 'developer, solvent'.
developer, soluble	In liquid penetrant examination, a developer completely soluble in its carrier, not a suspension of powder in a liquid, which dries to an absorptive coating.
developer, solvent	In liquid penetrant examination, developer particles suspended in nonaqueous carrier prior to application.
developing time	In liquid penetrant examination, the elapsed time between the application of the developer and the examination of the test area.

dip rinse	In liquid penetrant examination, a means of removing excess penetrant in which the test parts are dipped into an agitated tank of water or remover.
discontinuity	In non-destructive examination, an interruption, which may be either intentional or unintentional, in the physical structure or configuration of a part.
dragout	In liquid penetrant examination, the carryout or loss of penetrant materials as a result of their adherence to the test parts.
drain time	In liquid penetrant examination, that portion of the dwell time during which the excess penetrant or emulsifier drains out from the test part.
dry developing cabinet	An enclosed cabinet in which a dust storm of fine developer particles is created by recirculating air.
drying oven	In liquid penetrant examination, an oven used for increasing the evaporation rate of rinse water or an aqueous developer carrier from the test parts.
drying time	In liquid penetant examination, the time required for a rinsed or wet developed test area to dry.
dwell time	In liquid penetrant examination, the total time that the penetrant or emulsifier is in contact with the test surface, including the time required for application and the drain time.
electrostatic spraying	A technique for attaining a uniform coating in which the material sprayed is given an electrical charge.
emulsification	The treatment of penetrants with emulsifier.

emulsification time	In liquid penetrant examination, the time that an emulsifier is permitted to remain on the test area to combine with the surface penetrant prior to removal.
emulsifier	A liquid that interacts with the material to make it water-washable.
emulsifier, dwell time	See 'emulsification time.'
emulsifier, hydrophilic	A water based emulsifier.
emulsifier, lipophilic	An oil based emulsifier.
evaluation	In non-destructive examination, a review of interpretations of the relevant indications to determine whether or not they meet the specified acceptance criteria.
false indication	In non-destructive examination, an indication obtained through improper technique or processing.
flaw	In liquid penetrant examination, a discontinuity open to the surface.
fluorescence	In liquid peretrant examination, the emission of light by a substance as a result of and only during the absorption of UV-A (black light).
immersion rinse	In liquid penetrant examination, a means of removing surface penetrant, in which the test part is immersed in a tank of either water or remover.
immersion time	The time during which the test parts are submerged.
indication	In non-destructive examination, evidence of a discontinuity that requires interpretation to determine its significance.
inspection	Visual examination of the test area after completion of the liquid penetrant processing steps.

interpretation	In non-destructive examination, the determination whether indications are relevant or non-relevant.
liquid penetrant examination	A non-destructive test that uses suitable liquids to penetrate discontinuities open to the surfaces under test and, after appropriate treatment, indicates the presence of discontinuities.
oil and chalk process	A process (out-moded) in which oil is used as the penetrant and chalk as the developer.
overwashing	In liquid penetrant examination, too long or too vigorous washing, or both, which results in removal of penetrants from some discontinuities.
penetrant	A liquid capable of entering small surface discontinuities and remain there during subsequent removal and be detectable on the application of developer.
penetrant,colour contrast	A solution of dyes, typically red, in an organic carrier system.
penetrant comparator	In liquid penetrant examination,an intentionally flawed specimen having separate but adjacent areas for the application of different penetrant so that a direct comparison of their relative effectiveness can be obtained.
penetrant, dual purpose	In liquid penetrant examination, a penetrant which produces both fluorescent and colour contrast visible indications.
penetrant, flaw detection	See 'liquid penetrant examination'.
penetrant, fluorescent	In liquid penetrant examination, a penetrant chacterised by its ability to fluoresce when excited by UV-A (black light).
penetrant, indication	See 'indication'.

penetrant, post emulsifiable	A liquid penetrant which does not contain an emulsifier and that requires the application of a seperate emulsifier.
penetrant process, post emulsifiable	A penetrant flaw detection process in which the penetrant on the surface is treated with an emulsifying agent after the completion of the penetration time.
penetrant removal	Removal of excess penetrant on the surface.
penetrant, solvent removable	A liquid penetrant so formulated that most of the excess penetrant on the surface can be removed by wiping with a lint-free material, with the remaining surface penetrant traces removable by further wiping with a lint-free material lightly moistened with solvent remover.
penetrant, thixotropic	A gelatinous penetrant in which the viscosity is reduced with the duration of an applied shear stress.
penetrant, visible	A liquid penetrant that is characterised by an intense colour, usually red.
penetrant, water-washable	A liquid penetrant which contains an emulsifier.
penetrant time	See 'dwell time'.
pooling	In liquid penetrant examination, the existance of excessive amounts of emulsifier or developer after draining.
post-cleaning	In liquid penetrant examination, the removal of residual examination materials from the test part after the penetrant examination has been completed.
precleaning	In liquid penetrant examination, the removal of surface contaminants from the test area so that they do not interfere with the examination process.

quenching of fluorescence	The extinction of fluorescence by causes other than the removal of the exciting radiation, for example by the action of strong oxidizing agents and/or acids or changes in temperature or concentration.
relevant indication	In non-destructive examination, an indication requiring evaluation.
remover detergent	In liquid penetrant examination, a penetrant remover that is a solution of a detergent in water.
replenisher	Materials added to compensate for the loss of particular constituents of a penetrant during use.
rinse	The process of removing liquid penetrant by means of washing or flooding with another liquid, usually water. This process is also termed wash.
solvent cleaners	Agents employed to clean the test surface by dissolution of oil and grease prior to application of penetrant. A synonymous term is 'degreasing fluid'.
solvent remover	A liquid penetrant remover that is a volatile liquid.
temperature envelope	The temperature range over which particular penetrant inspection test will operate.

through penetration technique	A process in which a suitable penetrant is applied to one side of a test component and a developing agent to the other with the object of revealing discontinuities giving a continuous leak path through the component.
ultrasonic cleaning	A cleaning method using a high frequency sound to remove surface contaminants usually in combination with solvent or detergent.
UV-A	Electromagnetic radiation having a wavelength in the region 315 nm to 400 nm.
UV-A filter	A filter that suppresses visible light and ultraviolet radiation other than UV-A.
UV-A monitor	An apparatus used for the measurement of UV-A radiation.
vapour degreasing	The removal of oils, greases and organic solids by the use of a suitable vapour.
vehicle	See 'carrier fluid'.
visible light	Electromagnetic radiation in the 400 nm to 700 nm wavelength range.
wash	See 'rinse'.
water tolerance	The amount of water that a penetrant emulsifier can absorb before its effectiveness is impaired.
water-washable penetrant process	A penetrant flaw detection process which uses water washable penetrant.
wetting action	The ability of a liquid to spread over and adhere to solid surfaces.
wetting agents	Substances added to liquid to improve their wetting action.

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SRI LANKA STANDARDS INSTITUTION

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