

Inspection Certificate (accordance to EN 10204 Type-3.1)
Product: ZChek DL-Developer
For Visible Liquid Penetrant Inspection

Batch No.: 201009

Mfg. Date: 10/20

We certify that the above product, when tested at the time of manufacturing meets the following requirements

- *ASME Boiler and Pressure Vessel Code 2010, 2013, 2017, 2019 Edition section V, Nondestructive Examination including 2005, 2006, 2008, 2009b and 2011a Addenda Article-6 paragraph T-640 and Article 24 as applicable.*
- *ASTM E-165/E-165M-12, Paragraph 7.1*

Parameter	ASME Boiler & PV Code	Quality requirement	Batch Result
Sulfur	Sec.V	< 0.1%	0.0049 wt % of residue
Chlorine + Fluorine	Sec. V	< 0.1%	0.0032 wt % of residue
Cleaner residue	Sec.V	< 0.005g/100ml	wt % of residue (ref note-4)

- *ISO 3658-2013*
- *NUCLER POWER CORPORATION OF INDIA for materials for Dye Penetrant Inspection process.*

Parameter	NPCL	Quality requirement	Batch Result
Sensitivity	5.2.1 (i)	Equal to standard	Pass
Sulfur content	5.2.1(ii)	Max 25ppm	Pass (ref note-2)
Halogen content	5.2.1 (ii)	Max 25 ppm	Pass (ref note-2)
Corrosive Properties SS CS Copper Brass Aluminum	5.2.1 (iii)	No indication of pitting	SS- No indication of pitting CS- No indication of pitting Copper- No indication of pitting Brass- No indication of pitting Aluminum- No indication of pitting

• **EN ISO 3452-2-2013**

Parameter	EN ISO 3452-2	Quality Requirement	Batch result
Appearance	6.1	Equal to standard	Pass
Sensitivity Test	6.2	Equal to standard	Pass
Corrosive properties	6.11	No evidence of staining, pitting or any other corrosion on Magnesium Alloy	Pass
Sulphur Content	6.12	< 200 ppm	49 ppm
Halogen Content	6.12	< 200 ppm	32 ppm
Solid Content	6.13	13.5-16.5 gm	14.4 gm
Developer Performance	6.15	Equal to standard	Pass
Re-dispersability	6.16	Readily dispersed	Pass
Density of carrier fluid	6.17	0.76-0.84 g/cc @29.5 deg.C	0.77g/cc

• **Internal quality Check**

Parameter	Internal Check	Quality Requirement	Batch Result
Spray pattern	QC/ISO/019	Equal to standard	Pass
Settling rate	IS 12889 : 1989	<2ml	Pass

Notes

1. Bulk material has a minimum shelf life of 5 years and Aerosol has minimum shelf life of 3 years.
2. The NPCL Sulphur and halogen content is evaluated on basis of turbidity against the standard solution.
3. Most specifications require test results stated in percent, but some require parts per million (ppm). To convert percent to ppm, move the decimal four places to the right
4. ASME Sec V, procedure states that to evaporate off volatile solvents before analysis for Sulfur and Halogens. According to these specifications, only those residues higher than 0.005 g/100ml shall be analyzed for Sulfur and Halogens. Lower residues shall be reported.

Signature
Manager Operations
Chaitra.M.N