

**Inspection Certificate (In accordance with EN 10204 Type-3.1)**

**Product: ZChek DL-Developer**

**Non Aqueous Developer For Visible Liquid Penetrant Inspection**

**Batch No.:**250181

**Mfg. Date:**01/25

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, 2021,2023 Edition section V, Nondestructive Examination including 2005, 2006, 2008, 2009b and 2011a Addenda Article-6 paragraph T-640 and Article 24 as applicable.*
- *ASTM E165/E165M-18, Paragraph 7.1*
- *ASTM E1417-21*

| Parameter           | ASME Boiler & PV Code | Quality requirement | Batch Result           |
|---------------------|-----------------------|---------------------|------------------------|
| Sulfur              | Sec.V                 | < 0.1%              | 0.0026 wt % of residue |
| Chlorine + Fluorine | Sec. V                | < 0.1%              | 0.0034 wt % of residue |

- *IS 3658-2013*
- *NUCLEAR 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 25ppm                | Pass (ref note-2)   |
| Corrosive Properties<br>SS<br>CS<br>Copper<br>Brass<br>Aluminum | 5.2.1 (iii) | No indication of pitting | SS- No indication of pitting<br>CS- No indication of pitting<br>Copper- No indication of pitting<br>Brass- No indication of pitting<br>Aluminum- No indication of pitting |



• **EN ISO 3452-2-2021**

| 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                |
| Sulfur Content           | 6.12          | < 200ppm   | 26ppm               |
| Halogen Content          | 6.12          | < 200ppm   | 34ppm               |
| Solid Content            | 6.13          | 13.5-16.5gm  | 14.27gm             |
| Developer Performance    | 6.15          | Equal to standard  | Pass                |
| Re-dispersibility        | 6.16          | Readily dispersed  | Pass                |
| Density of carrier fluid | 6.17          | 0.76-0.84 g/cc @29.5deg.C  | 0.78g/cc @29.5deg.C |

• **Internal quality Check**

| Parameter     | Internal Check | Quality Requirement | Batch Result |
|---------------|----------------|---------------------|--------------|
| Spray pattern | QC/TP/003      | Equal to standard   | Pass         |
| Settling rate | QC/TP/030      | <2ml                | 1ml          |

**Notes**

1. Bulk material has a minimum shelf life of 5 years and Aerosol has minimum shelf life of 3 years.
2. The NPCL Sulfur 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*

**QC Chemist**

