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# Certificate of Analysis

**Product**

**11287 - Morpholine extrapure AR, ACS, ExiPlus,  
Multi-Compendial, 99.5% - [110-91-8]**

**Batch No**

**4836944**

**Analysis Date**

08-Aug-2023

**Date of Manufacture**

August 2023

**Expiry Date/Re-Test Date**

August 2028

**Molecular Formula**

C<sub>4</sub>H<sub>9</sub>NO

**Molecular Weight**

87.12

| Test Parameters         | Standards                                    | Actual Results |
|-------------------------|--|----------------|
| ExiPlus                 | meets compendial specs of USP, BP,<br>Ph.Eur | Complies       |
| Appearance (Clarity)    | Clear  | Clear          |
| Appearance (Colour)     | Colourless                                   | Colourless     |
| Appearance (Form)       | Liquid                                       | Liquid         |
| Colour (APHA)           | max. 15                                      | Passes         |
| Assay                   | min. 99.5%                                   | 99.81%         |
| Density (g/ml) @ 20°C   | 0.999-1.000                                  | 0.999          |
| Refractive Index (20°C) | 1.454-1.455                                  | 1.454          |
| Boiling Range           | 127-129°C                                    | 127-129°C      |
| Non Volatile Matter     | max. 0.01%                                   | 0.0005%        |
| Iron (Fe)               | max. 0.00005%                                | Passes         |
| Heavy Metals (Pb)       | max. 0.0001%                                 | Passes         |
| Copper (Cu)             | max. 0.00001%                                | Passes         |
| Water (KF)              | max. 0.1%                                    | 0.06%          |

FRM/82/11/2/11287 Rev No. 2 Date 06/11/2018

Prepared by **Udit**

In compliance with the standard specifications of SRL

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