

## **CERTIFICATE OF ANALYSIS**

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| canada                           |          |  |                       |  |  |  |  |  |
|----------------------------------|----------|--|-----------------------|--|--|--|--|--|
| 1. Identificati                  | ion      |  |                       |  |  |  |  |  |
| Catalogue<br>Number:             | F6880    | 00   | CAS<br>Number:        | 2611-82-7  |  |  |  |  |
| Product: Food Red No. 102 (>80%) |          |  | Synonym:              | 7-Hydroxy-8-[2-(4-sulfo-1-<br>naphthalenyl)diazenyl]-1,3-<br>naphthalenedisulfonic Acid Trisodium Salt;<br>C.I. Acid Red 18; Cochineal Red 4R; New<br>Coccine; Coccin Red; Takaoka Brilliant Scarlet<br>3R; Triacid Ponceau 4R; Triacid Scarlet 3R;<br>Trisodium 1-(4-sulfo-1-naphthylazo)-2-<br>naphthol-6,8-disulfonate; Vicoacid Scarlet 3R;<br>Victoria Scarlet 3R; Victoria Scarlet Red |  |  |  |  |
| Structure:                       |          | SO <sub>3</sub> Na                               |                       | Molecular Formula:   |  |  |  |  |
|                                  |          |  |                       | C20H11N2Na3O10S3   |  |  |  |  |
|                                  |          |  |                       | Molecular weight:  |  |  |  |  |
|                                  |          | $\sim$   |                       | 604.47   |  |  |  |  |
|                                  |          |  |                       | Source of Product:   |  |  |  |  |
|                                  |          | N SO <sub>3</sub> Na                             |                       | N/A  |  |  |  |  |
|                                  | F        |  |                       | Solubility:  |  |  |  |  |
|                                  |          |  |                       | DMSO (Slightly), Methanol  |  |  |  |  |
|                                  |          | SO <sub>3</sub> Na                               |                       | (Slightly), Water (Slightly)   |  |  |  |  |
| Lot<br>Number:                   | 1-CTZ    | -19-1  | Purity:               | >80%   |  |  |  |  |
| Shipping<br>Condition:           |          | roduct Is Stable To Be<br>ed At Room Temperature | Storage<br>Condition: | 20°C   |  |  |  |  |
| 2. Warning                       |          |  |                       |  |  |  |  |  |
| Warning 1:                       |          | Warning 2:                                       |                       | Warning 3:   |  |  |  |  |
| 3. Analytical I                  | Informat | ion  |                       |  |  |  |  |  |
| Tests:                           |          | Specifications:                                  |                       | Results:   |  |  |  |  |
| Appearance                       |          | Dark Red to Very Dark Red Solid                  |                       | Very Dark Red Solid  |  |  |  |  |
| NMR                              |          | Conforms to Structure                            |                       | Conforms   |  |  |  |  |
| MS                               |          | Conforms to Structure                            |                       | Conforms   |  |  |  |  |
| Elemental<br>Analysis            |          | Conforms   |                       | %C: 35.76, %H: 2.20, %N: 4.15  |  |  |  |  |
| UV Absorbance                    |          | Report Result                                    |                       | 215 nm, 246 nm, 332 nm, 509 nm   |  |  |  |  |
| Water Content                    |          | Report Result                                    |                       | 3.7% by Karl Fischer   |  |  |  |  |
| Sodium Content                   |          | Report Result                                    |                       | 10.13% by Ion Chromatography   |  |  |  |  |
| HPLC Purity                      |          | Report Result                                    |                       | 99.01% (250 nm)  |  |  |  |  |

Additional Information:

N/A

Purity is based on the analytical results of the tests performed. NMR and Elemental Analysis (if available) may have an accuracy of  $\pm$  2%. Isotopic purity is based on mass distribution observed. The contents of the specifications are subject to change without advance notice, and the specification values displayed here are the most up to date values.

4. Signatures

| Reviewed By | Reviewed By   | C of A Approved<br>By | Test Date | Retest Date |
|-------------|---------------|-----------------------|-----------|-------------|
| Evan Burns  | Toni Rantanen | Chanell Chu           | 7/14/2021 | 7/12/2025   |
| Evan Burns  | hite          | Gandl Fru             |           |             |
|             |               |                       |           |             |