



## Certificate of Analysis

### Manganese Diron Oxide

**Catalog Number:** MD1001  
**Lot Number:** 0522903  
**CAS Number:** 12063-10-4  
**Molecular Formula:**  $MnFe_2O_4$   
**Molecular Weight:** 230.63  
**Storage:** 15°C – 30°C  
**Date of Manufacture:** April 23, 2019  
**Retest Date:** April 22, 2021

| Test         | Specification                    | Result   |
|--------------|----------------------------------|----------|
| Appearance   | Brown-dark brown to black powder | Conforms |
| Assay        | ≥ 99.5%                          | 99.5%    |
| Barium       | ≤ 0.003%                         | 0.0003%  |
| Calcium      | ≤ 0.15%                          | 0.09%    |
| Cobalt       | ≤ 0.01%                          | 0.0092%  |
| Chromium     | ≤ 0.003%                         | 0.0025%  |
| Copper       | ≤ 0.0025%                        | 0.002%   |
| Magnesium    | ≤ 0.03%                          | 0.02%    |
| Sodium       | ≤ 0.18%                          | 0.1%     |
| Strontium    | ≤ 0.002%                         | 0.0014%  |
| Praseodymium | ≤ 0.08%                          | 0.06%    |
| Zinc         | ≤ 0.05%                          | 0.04%    |

Approved by:

John Grubb, PhD  
Gojira Fine Chemicals, LLC  
Quality Manager  
Tel: 440-539-7033 Fax: 888-211-5523  
[john@gojirafc.com](mailto:john@gojirafc.com)

Date: May 22, 2019