

Laboratory **Quality Services & Solutions (Goa), Hospet Branch, H. No. 878, Ayudhay, 2nd & 3rd Floor, 11th Ward, Kalyannagar, Chitwadgi, Hosapete, Karnataka**

Accreditation Standard **ISO/IEC 17025: 2005**

Certificate Number **TC-7555**

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Validity **14.12.2018 to 13.12.2020**

Last Amended on --

"In view of the transition for ISO/IEC 17025:2017, the validity of this accreditation certificate will cease on 30.11.2020"

| Sl. | Product / Material of Test | Specific Test Performed | Test Method Specification against which tests are performed | Range of Testing / Limits of Detection |
|-----|----------------------------|-------------------------|---|--|
|-----|----------------------------|-------------------------|---|--|

CHEMICAL TESTING

| I. | ORES & MINERALS | | | |
|-------------------------|-----------------|---|--|-------------------|
| 1. | Iron Ore | Iron as Fe | IS 1493 (Part-1):1981 (Stannous Chloride Method) | 20 % to 70% |
| | | Ferrous Oxide as FeO | IBM Manual – 2012 | 0.2 % to 80% |
| | | Silica as SiO ₂ | IS 1493 (Part-1):1981 | 0.5 % to 25% |
| | | Alumina as Al ₂ O ₃ | IS 1493 (Part-1):1981 | 0.1 % to 50% |
| | | Manganese as Mn | IS 1493 (Part-1):1981 | 0.1 % to 28% |
| | | Phosphorus as P | IS 1493 (Part-1):1981 | 0.05 % to 0.2% |
| | | Sulphur as S | IS 1493 (Part-1):1981 | 0.005 % to 0.2% |
| | | Calcium oxide as CaO | IBM Manual -2012 | 0.005 % to 0.015% |
| | | Magnesium oxide as MgO | IBM Manual -2012 | 0.005 % to 0.015% |
| | | Sodium oxide as Na ₂ O | IBM Manual - 2012 | 0.001 % to 0.015% |
| | | Potassium oxide as K ₂ O | IBM Manual - 2012 | 0.001 % to 0.015% |
| | | Moisture as H ₂ O | IS 1493 (Part-1):1981 | 0.5 % to 20% |
| Loss on Ignition as LOI | ISO 11536 2015 | 0.1 % to 10% | | |
| 2. | Manganese Ores | Manganese as Mn | IS 1473 2004 | 5.0 % to 55% |
| | | Manganese Dioxide as MnO ₂ | IS 1473 2004 | 3.0 % to 85% |
| | | Iron as Fe | IS 1473 2004 | 1.0 % to 25% |
| | | Silica as SiO ₂ | IS 1473 2004 | 1.0 % to 15% |
| | | Alumina as Al ₂ O ₃ | IS 1473 2004 | 0.01 % to 10% |
| | | Phosphorus as P | IS 1473 2004 | 0.015 % to 0.2% |
| | | Sulphur as S | IS 1473 2004 | 0.01 % to 0.2% |

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| 3. | Lime Stone / Dolomite | Calcium oxide as CaO | IS 1760 (Part-3): 1992 | 0.5 % to 55% |
| | | Magnesium oxide as MgO | IS 1760 (Part-3):1992 | 0.2 % to 45% |
| | | Silica as SiO ₂ | IS 1760 (Part-2): 1991 | 0.1 % to 20% |
| | | Alumina as Al ₂ O ₃ | IS 1760 (Part-3): 1992 | 0.1 % to 5% |
| | | Loss on Ignition as LOI | IS 1760 (Part-1): 1991 | 0.1 % to 50% |
| 4. | Quartz | Silica as SiO ₂ | IS 1917 (Part-3): 1992 | 0.5 % to 99% |
| | | Loss on Ignition as LOI | IS 1917 (Part-1):1991 | 0.1 % to 2% |
| II. | SOLID FUELS | | | |
| 1. | Coal / Coke | Total Moisture as (TM) | IS 1350 (Part-I): 1984 | 1 % to 25% |
| | | Proximate Analysis:- | | |
| | | a) Moisture as (H ₂ O) | IS 1350 (Part-I): 1984 | 0.1 % to 7% |
| | | b) Ash | IS 1350 (Part-I): 1984 | 0.5 % to 60% |
| | | c) Volatile Matter as VM | IS 1350 (Part-I): 1984 | 0.5 % to 50% |
| | | d) Fixed Carbon as FC | IS 1350 (Part-I): 1984 | 10 % to 88% |
| | | Sulphur as S | IS 1350 (Part-III): 1969 | 0.1 % to 20% |
| Phosphorus as P | IS 1355 1984 | 0.010 % to 1% | | |