



BHARAT HEAVY ELECTRICALS LIMITED
SEAMLESS STEEL TUBE PLANT
TIRUCHIRAPPALLI-14

Ref. No. SSTP: Chem: Phosphate:01
Rev: 02
Date: 13-07-2023
Page: 1 of 2

Requirements for Zinc Phosphate for cold drawing of tubes

Purpose: To treat the surface of the steel tubes for protection against corrosion and enabling coating of lubricant for smooth cold drawing of tubes.

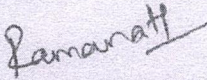
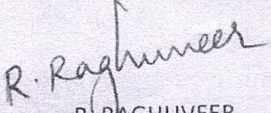
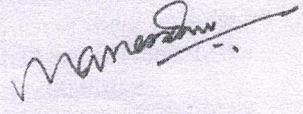
1	Application	For Cold drawing of Seamless Carbon and Alloy Steel tubes
2	Specific Gravity at ambient temperature	1.4 to 1.6
3	Total acid for 10 ml of 5% solution	30 to 50 Points
4	Free acid for 10 ml of 5% solution	2.5 to 6.0 points
5	Operating Temperature of bath (in ° C)	70 to 80
6	Chemical Composition	Phosphoric Acid – Min. 35 % to Max 40 % Nitric Acid-Min. 8 % to Max 12% Zinc- Min. 8% to Max 12% Proprietary additives if any required to be used along with the Zinc Phosphate chemical to make suitable for this application shall form part of the offer and to be supplied as a package. Such of those proprietary additives if applicable shall be indicated by the supplier in the offer to be submitted.
7	Soaking Time	10 - 15 Minutes (for Carbon Steel) 15 - 20 Minutes (for Alloy Steel)
8	Coating thickness in Microns	Minimum 7
9	Corrosion Protection	Tube surface treated with phosphate shall not get rusted for 3 days in normal atmospheric in-door condition (at ambient temperature).
10	Application method	Dipping
11	Soap coating test	Smooth uniform white coating of Soap shall be formed on the surface of tube (test piece)
12	Addition of toners/Accelerator	Not accepted
13	Sludge formation	Formation shall be minimum and to be settled at the bottom
14	General Conformance to IS Specification	IS: 6005:1998 (R-2002) Clauses: 3.0, 4.1, 4.2, 4.2.1, 5.2 7 6.0 including Table-3
15	Keeping Property (Shelf life) – in Months	12



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16	Packing	The phosphate shall be supplied in damper proof HDPE carboys of 30 Liters capacity with the following marking. 1. Phosphating Chemical for BHEL SSTP use only 2. Supplier Name 3. Batch No. & Date 4. Quantity 5. Shelf Life 6. BHEL Specn. SSTP:Chem:Phosphate
17	Material Safety Data Sheet (MSDS)	Relevant MSDS shall be furnished
18	Test Certificate	The supplier shall furnish test certificate for the above requirements along with supply.

Prepared by	Reviewed by	Approved by
 N. RAMANATHAN DY.MANAGER/CMP	 R. RAGHUVIER MANAGER/HM & CM PRDN	 K. MAHENDRAN AGM/OPERATIONS/SSTP