



SARA SAE ENGINEERING SPECIFICATION	
Section: SES 26 – 773	
Issue: "A"	Rev No.: "0"
Eff. Date: 06-08-2014	Page: 1 of 5

MATERIAL SPECIFICATION FOR AEROCOTE[®] 4 MANGANESE
PHOSPHATE APPLIED BY IMMERSION

Rev	Reason of Change	Date	Made By	Reviewed By	Approved By	Status
0		06-08-2014	Pankaj Kumar	K. Sunil	K.C.Raturi	RELEASED

	SARA SAE ENGINEERING SPECIFICATION	
	Section: SES 26 – 773	
	Issue: “A”	Rev No.: “0”
	Eff. Date: 06-08-2014	Page: 2 of 5

MATERIAL SPECIFICATION FOR AEROCOTE 4 MANGANESE PHOSPHATE APPLIED BY IMMERSION

1.0 SCOPE

1.1 - Aerocote[®] 4 is a manganese phosphating compound. It produces fine, dense, crystalline coatings on ferrous metals. Aerocote 4 reduces wear and facilitates break- in of bearing surfaces. Aerocote 4 can be applied to virtually any ferrous metal component (sub sea parts, tubular goods, threaded components, valves, fasteners, connectors, etc). Coating Weight is 2000 to 3500 mg/ft² (21.5 to 37.7 g/m²). Depending on the composition and hardness of the material being treated and on concentration, time and temperature of application. Aerocote 4 is especially where it is desirable to reduce friction. Galling and scoring on ferrous components.

1.2- This material specification is intended to aid the purchasing department in procuring and the vendor in supplying a material which meets the needs of its intended use, and the quality control department in the inspection and release of incoming material.

2.0 PHYSICAL & CHEMICAL PROPERTIES

1,- Chemical Composition	: manganese, nickel, phosphate, nitrate
2,- Physical form	: liquid
3,- Phosphorous- free	: no
4,- NPE surfactant-free	: yes
5,- Odour	: no
6,- pH	: <2.5
7,- Freezing point	: -6.7°C (19.9°F)
8,- Boiling point/ boiling range	: 100°C
9,- Vapor pressure	: Note: no data available
10,- Bulk density	: 9.72 lbs. / gal
11,- Water solubility	: Note: completely soluble
12,- Partition co-efficient:	:
n- octanol / water	Note: no data available
13,- Relative density	: 1.165
14,- Evaporation rate	: 1
	Note: Water = 1



SARA SAE ENGINEERING SPECIFICATION	
Section: SES 26 – 773	
Issue: "A"	Rev No.: "0"
Eff. Date: 06-08-2014	Page: 3 of 5

3.0 APPLICATION PROCEDURE

- 3.1.- Use Aerocote 4 at 12 percent by volume. Apply via immersion.
- 3.2.- Recommended Operating Temperature: 200 – 210°F (93 – 99°C).
Recommended Application Time: 8- 12 minute dip. Dry before oiling.

4.0 SOLUTION CONTROL

Aerocote 4 is controlled by total acid using Gardotest Procedure 129.
Sample Volume 2 ml.

5.0 HAZARDOUS COMPONENTS INFORMATION

Component	CAS -NO.	Weight percent
Phosphoric acid	7664-38-2	1.00 – 5.00
Nickel nitrate	13138-45-2	1.00 – 5.00
Manganese dehydrogenate phosphate	18718-07-5	10.00 – 30.00

Unidentified ingredients are considered not hazardous under Federal Hazard Communication Standard (29CFR 1910. 1200)

6.0 HYZARDS IDENTIFICATION

6.1 EMERGENCY OVERVIEW

Form	: Liquid
Color	: Green
Odour	: None
Hazard Summary	: Harmful by swallowed. Harmful by inhalation. Causes severe burns, may cause cancer.

	SARA SAE ENGINEERING SPECIFICATION	
	Section: SES 26 – 773	
	Issue: "A"	Rev No.: "0"
	Eff. Date: 06-08-2014	Page: 4 of 5

Route(s) of Entry :	Inhalation	Skin	Ingestion
	Yes	Yes	Yes

Carcinogenicity:

NTP	Nickel nitrate	This substance is listed by NTP as a carcinogen.
IARC	Nickel nitrate	This substance is listed by IARC as a carcinogen.
OSHA	No substance in this product is regulated by OSHA as a carcinogen.	

7.0 STORAGE AND HANDLING PRECAUTION

Dry indoor storage at temperature between 40°F and 100°F (4.4°C and 37.8°C) is recommended, away from any incompatible materials.

7.1 STORAGE

Requirements for storage areas and containers closed	: Store indoors in a cool, well – ventilated place keep containers dry and tightly to avoid moisture absorption and contamination.
--	--

7.2 HANDLING

Handling	: Use only with adequate ventilation. Add this product to surface of solution slowly to avoid spattering. Do not add large amounts of product to solution at any one time.
----------	--

	SARA SAE ENGINEERING SPECIFICATION	
	Section: SES 26 – 773	
	Issue: “A”	Rev No.: “0”
	Eff. Date: 06-08-2014	Page: 5 of 5

8.0 DOCUMENTATION REQUIRED

Each shipment shall be accompanied by material certifications for each lot of material, certifications must be positively relatable to the lot of material represented.

9.0 APPROVED SOURCE

Product name	: AEROCOTE 4
MSDS Number	: REL_76017
Company Name & address	: Chemetall US, Inc. 675 Central Avenue New Providence, NJ 07974
Telephone	: +18005264473
Telefax	: +19084644658
Emergency telephone no.	: CHEMTREC – 800-424-9300