

A. INTRODUCTION:

ALUKOTE 1200 is a powdered compound used to impart a protective coating on aluminium which ranges in colour from light iridescent golden yellow to tan. The process is carried out at ambient/ room temperature. The coating produced provides excellent protection for unpainted aluminium and bonds paint well.

Alukote 1200 meets the requirements of Specification MIL-C-5541 for Grade C, Class Nos, 1,2 & 3 coatings.

B. SUMMARY OF OPERATING DATA:

1. COATING BATH MAKE-UP:

For each 100 litres of bath, add to the water with stirring:

ALUKOTE 1200 750 grams

NOTE: Pre-Dissolve the ALUKOTE 1200 in water with stirring using a plastic tub before adding to the bath.

2. CONTROL POINTS (For Normal Operating Conditions):

ALUKOTE Titration	:	3.3 ml
PH	:	1. to 1.7
Temperature	:	20 ⁰ to 38 ⁰ C
Immersion Time	:	1 to 3 Min

NOTE: For details of titration and PH control see Section E, & for operational recommendations see Section F

C. PROCESS SEQUENCE:

Operation 1	Clean }	See Sect. D
Operation 2	Rinse }	
Operation 3	Coat with ALUKOTE 1200	
Operation 4	Rinse }	See Sect. G
Operation 5	Acidulated Rinse }	

The work, after processing and drying, is ready for use either painted or unpainted.

NOTE: When aluminium to be treated with ALUKOTE 1200 has dirt, grime or heavy oxide on the surface, which should be removed by a suitable cleaner before coating with ALUKOTE.

D. SURFACE PREPARATION:

Most work can be cleaned using a suitable sodium **Hydroxide solution** (20- 25 % concentration) . Aluminium castings, after cleaning should be Immersed in **Dilute Nitric acid** 10-30 % Solution (See Note in Sect. C above).

The work, after cleaning should be rinsed with water. This rinse should be continuously overflowed to avoid contamination.

NOTE: Our technical representative will recommend the proper type of cleaner for each processing line.

E. MAINTENANCE OF THE BATH:

The ALUKOTE 1200 bath is controlled in the plant by a titration and pH check. pH is best determined using an electrometric pH meter.

1. ALUKOTE Titration:

- a.** Pipette a 5 ML. sample of the ALUKOTE 1200 bath into an iodimetric flask and dilute to approximately 100 ML.
- b.** Add approximately 1 gm of Titrating Compound (Potassium Iodide) and agitate the solution until the Titrating Compound is dissolved.
- c.** Add approximately 10 ml of Hydrochloric Acid CP / LR in two equal portions to the lip of the flask, raising the stopper slightly after each addition to allow the acid to run into the flask.
- d.** Rinse the lip several times with water and replace the stopper.
- e.** Fill the burette to the zero mark with Titrating Solution (0.1 N Sodium Thiosulfate).
- f.** After the sample has settled for approximately one minute, titrate with titrating Solution until a straw colour is obtained.
- g.** Add several milliliters of Indicator Solution (Soluble Starch Solution) to the sample and continue the titration with Titrating Solution (without returning the burette to zero) until the blue-black colour disappears.
- h.** Record the number of milliliters of Titrating Solution used as the ALUKOTE 1200 titration.

Replenishment: Add 225 gms Of ALUKOTE 1200 per 100 litres of bath for each ml lacking. The bath should be kept within 0.5 ML. of the specified ALUKOTE 1200 Titration (See section B-2).

2. pH Determination:

A pH determination should be made each time the ALUKOTE 1200 bath has been replenished. The optimum pH for this bath lies between 1.5 to 1.7 baths of a higher concentration usually operate in a pH range from 1.6 to 2.0

NOTE: The pH of the ALUKOTE 1200 bath is controlled by the addition of 50 ml of concentrated nitric acid for each 1 Kg of ALUKOTE 1200 powder used. It is recommended that no large bulk additions should be made along with the required ALUKOTE 1200 addition. In certain cases, the pH of the bath will continue to decrease several hours after an addition of nitric acid (as the solution seeks equilibrium). Accordingly, only a small addition should be made at any one time, and approximately 15 minutes be allowed to elapse before any subsequently adjustments.

(See Section F-2)

F. OPERATIONAL RECOMMENDATIONS:

1. Each alloy reacts with the ALUKOTE 1200 solution to produce a coating that is characteristic of that alloy. For the treating time selected, the bath should produce light iridescent golden to tan coatings on aluminium. However, local conditions may affect the operation of the bath. Therefore, if the above-described coatings are not obtained, add ALUKOTE 1200 in 3.75 gm increments per litre of bath (up to a maximum of 20 gms. Per liter) until satisfactory coatings are produced. As the concentration of ALUKOTE 1200 is increased, the bath will have to be titrated to determine the operating titration, adjustments in pH may also be necessary as the concentration is increased.
2. During normal operation, the bath pH will rise causing a reduction in the colour intensity of the coating. If during normal replenishment the addition of the specified amount of nitric acid (See Section E-2) does not maintain the desired colour, the amount of nitric acid per replenishment may be increased slowly to 200 ml per 1 Kg of powder.
3. The initial charge and replenishment data contained herein are normal for most installations; however, your Shreya technical representative may suggest a deviation from this data if indicated by local conditions.
4. If the ALUKOTE coating is powdery, the cause may be found in one or more of the following:
 - a. The pH of the bath is too low for the concentration selected.
 - b. The work has been improperly cleaned and/or rinsed.
 - c. The ALUKOTE bath has become contaminated with phosphates, sulfates, or some other contaminant (an analysis is required). In most cases, phosphates in the ALUKOTE bath will stop off coating completely.
 - d. The bath temperature is too high.
 - e. The immersion time is too long.

5. If ALUKOTE coating is too light or too iridescent, the cause may be found in one or more of the following:
 - a. The temperature of the ALUKOTE bath is too low for the immersion time selected.
 - b. The immersion time is too short
 - c. The concentration of the bath is too low.
 - d. The pH of the bath is outside of the proper range.
6. The following precautions should be observed during the operation of the ALUKOTE 1200 process:
 - a. Adequate ventilation should be provided for the ALUKOTE processing area. Operators must not breathe ALUKOTE vapours.
 - b. Operators should be equipped with rubber gloves and aprons. When handling ALUKOTE concentrate, operators should use, in addition, respirators and face shields.
 - c. Any ALUKOTE bath or concentrate should be immediately flushed from the skin with water.

G. AFTER TREATMENT:

After the work is treated, it should be given two rinses – an unheated water rinse and a final rinse in water acidulated with deoxidene. The final acidulated rinse may be heated to facilitate drying.

H. DRYING PAINT-BONDING COATINGS:

Parts coming from the final water or final acidulated rinse should be dried as soon as possible in an oven or hot air or by other means which will not contaminate the metal with fumes or oil. In many cases, heavy-gauge metal will retain enough heat to dry completely and rapidly without using an oven.

Products with cavities or pockets which trap moisture should be blown dry with a jet of clean compressed air. Moisture splatters should be dried with clean cloths.

If handling of the dried, unpainted work is necessary, operators should wear clean cotton gloves.

- I. **EQUIPMENT NOTES:** The work is processed in conventional immersion processing equipment. The equipment for the ALUKOTE (and Deoxidizer, if used) stage may be constructed of Stainless steel (Type 316 preferred). All other stages may be constructed of mild steel. All heated tanks should be equipped with steam plate coils and side heating (Preferred for a more even temperature distribution) or other heat sources capable of rapidly heating the bath to the specified temperature. Mild steel crates, baskets, tumbling barrels or conveyors, etc., should be provided to carry the work through the various stages. Acid-resistant crates, baskets, tumbling barrels, or conveyors, etc., should be provided to carry the work through the various stages.

PANACEA CHEM SPECIALITIES LLP

176-177 (New 11) , Aziz Sait Industrial Town, Nayandahalli, Mysore Road, Bangalore 560 039.
Tel: 080- 2339 1620 / 23390854 / 9019660064 / 7892321504 /E- mail: pcsllpb@gmail.com