Technical Process Bulletin

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MAGNESIUM TREATMENT KIT

1. Introduction:

The Magnesium Treatment Kit contains products formulated for treating magnesium alloys to produce a chromate conversion coating conforming to SAE AMS-M-3171, Type VI. The application method conforms to requirements in NAVAIR 01-1A-509 and is meant primarily for touch-up, corrosion repair processes of magnesium alloys.

2. Operating Summary:

The products are used as received to produce a prepaint surface treatment on magnesium alloys.

3. The Process:

The complete process for treating magnesium alloys with the Magnesium Treatment Kit normally consists of the following steps:

A. Cleaning
B. Water rinsing
C. Treating with Magnesium Treatment
D. Water Rinsing
E. Drying

4. Materials:

The materials contained in the Magnesium Treatment Kit are:

Quantity	Description
1	8 oz. Bottle, Magnesium Treatment
2	Beaker, polyethylene, 250-ml
1	16 oz. Spray bottle (empty), for water rinsing
2	Acid Brush, disposable

5. Equipment: Goggles, brush, rubberized gauntlets, and clean wiping cloths.

Note

Beakers and brushes should be washed out with water after cleaning and after coating with the Magnesium Treatment.

6. Surface Preparation:

Cleaning:
Surfaces to be treated must be free from corrosion, oil, grease, dirt, etc.

Remove corrosion using documented procedures in individual repair processes. Clean with an appropriate solvent or an aqueous alkaline cleaner, applied with a clean brush or rag prior to the application of the Magnesium Treatment.

Warning

Solvents can be flammable and all solvents should only be used with adequate ventilation. Refer to the Material Safety Data Sheet for applicable safety precautions.

Rinsing:
Rinse the surface thoroughly with clean water from the spray bottle. After rinsing, the surface should be checked carefully to see that all surfaces are thoroughly wet. If there are "water break" areas, the surface is still dirty or oily and should be retreated with the solvent or an aqueous cleaner until water rinsing produces a "water break" free surface.

It is not necessary to dry the rinsed surface prior to the application of the Magnesium Treatment; keeping the rinsed surface wet with water prior to the application of the Magnesium Treatment will assist in obtaining a more uniform coating.

7. Treating with Magnesium Treatment:

Buildup:
The Magnesium Treatment is used as received. The Magnesium Treatment and the metal surfaces to be repaired should be between 60 and 100°F (15 and 37°C).

Operation:
Apply the Magnesium Treatment with a brush to the clean magnesium alloy surface, liberally and evenly; keep the surface wet for 1 to 3 minutes before rinsing. As the Magnesium Treatment reacts, the part will turn a brassy color to golden brown, depending on the treatment time and alloy.

Magnesium alloys properly treated with Magnesium Treatment usually have a thin, brown to gray colored coating. The coating is hard and free from powder if the chemical has been properly applied.

For large surfaces, the solution should be applied to only as much surface as can be coated and rinsed before the Magnesium Treatment solution dries. Proceed with the coating and the rinsing until the entire surface is coated with Magnesium Treatment.

Note

When the Magnesium Treatment is applied with a brush, the coating can appear to be non-uniform. Streaks arising from brush marks and "rundown" of excess solution from the brush may be evident but these are not harmful. These conditions may be exaggerated if the metal has not been properly cleaned.

The coating produced with Magnesium Treatment in accordance with the above directions, meets the requirements of SAE Specification AMS-M-3171, Type VI (formerly MIL-M-3171, Type VI).

8. After Treatment:

Rinsing:
When the desired color is achieved, and before the coated surface dries, rinse the surface with clean water, using the supplied 16 oz. spray bottle.

Drying:

After proper rinsing, allow the work to air dry. Clean, dry, compressed air can be used to blow moisture from joints, depressions, etc., and to speed the drying. Once dry, the part is ready for further processing.

NOTE: If the work coated with Magnesium Treatment is to be painted, it should not be touched with bare hands. If painting is delayed, remove dust with clean, dry rags. If oil collects on the surface coated with Magnesium Treatment, remove it with an appropriate solvent.

9. Storage Requirements:

Magnesium Treatment solution should not be permitted to freeze or be exposed to temperature in excess of 100° Fahrenheit. Shelf life is one year.

10. Waste Disposal Information:

The Magnesium Treatment solution contains hexavalent chromium. Consult local waste handling and environmental regulations for proper disposal procedures. Additional disposal information is provided on the Material Safety Data Sheet for the product.

Magnesium Treatment solution contains a strong oxidizer. Rags, sponges, swabs, etc., used for applying or removing the Magnesium Treatment solution should not be allowed to dry out. If allowed to dry, they may constitute a fire hazard. Immediately after use they should be thoroughly rinsed in water before storing or discarding.

11. Precautionary Information:

When handling the chemical product used in this process, the first aid and handling recommendations on the Material Safety Data Sheet for the product should be read, understood and followed.

The product is acidic and may cause irritation of the skin and eyes. Do not get in eyes, on skin or on clothing. See Material Safety Data Sheet for appropriate protective clothing. In case of contact, follow the recommendations on the Material Safety Data Sheet for Magnesium Treatment.

Handle the chemicals carefully, observing the usual precautions taken in the handling of acidic oxidizing materials. Keep all unused chemicals tightly sealed in the proper container when not in use. Goggles, rubberized gauntlets and protection for the clothing must be worn.

Magnesium Treatment solution contains a strong oxidizer. Clothing contaminated with Magnesium Treatment can become dangerously flammable. Immediately remove contaminated clothing and rinse thoroughly with water.

Contact of combustible material with Magnesium Treatment may cause fire.

The Magnesium Treatment contains chromic acid in excess of 0.1 percent. The following statement should be included as part of the label for containers in which it is stored:

"POSSIBLE CANCER HAZARD, CONTAINS CHROMIC ACID WHICH MAY CAUSE CANCER BASED ON ANIMAL DATA. Risk of cancer depends on duration and level of exposure."

Refer to Material Safety Data Sheets for additional safety information.

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