Technical Process Bulletin

BONDERITE M-CR 1001 AERO
AERO/CHROMATE COATING
(KNOWN AS ALODINE 1001)

Issued 11/6/2014

INTRODUCTION

BONDERITE M-CR 1001 AERO (known as ALODINE 1001) is a nonflammable, chromic acid based, coating chemical that will produce a chrome conversion coating on aluminum and its alloys.

The coating formed by BONDERITE M-CR 1001 AERO is clear in color and it becomes a part of the aluminum surface. This chrome conversion coating offers the best affordable substrate for both paint adhesion and corrosion resistance.

BONDERITE M-CR 1001 AERO is used when it is desired to retain the silver white aluminum finish, either unpainted or with a clear finish over the chemical coating.

OPERATING SUMMARY

Spray Application:

Dilute two part BONDERITE M-CR 1001 AERO with three part water.

Immersion Application:

For each 100 parts of bath, add 25 parts BONDERITE M-CR 1001 AERO to 75 parts of water.

Operation and Control:

Time	Immersion	2 to 5 minutes
	Spray	15 to 30 seconds
Temperature	Ambient to 100° Fahrenheit	

THE PROCESS

The process to prepare metal for painting normally consists of the following steps:

A. Cleaning (Bonderite C-IC 33)
B. Water rinsing
C. Apply BONDERITE M-CR 1001 AERO
D. Water rinsing
F. Drying

The process for polished aluminum where a minimal metal etch is desired normally consists of the following steps:

A. Cleaning (Bonderite C-IC 79)
B. Water rinsing
C. Apply BONDERITE M-CR 1001 AERO
D. Water rinsing
F. Drying

The work, after processing and drying, is ready to be painted.

MATERIALS

BONDERITE M-CR 1001 AERO
BONDERITE C-IC 33 (known as TURCO ALUMIPREP 33), or
BONDERITE C-IC 79 (known as METALPREP 79)

EQUIPMENT

Acid resisting (rubber, stainless steel or plastic) buckets, troughs or other suitable containers should be used to hold the BONDERITE M-CR 1001 AERO or diluted BONDERITE M-CR 1001 AERO solution. Steel and galvanized containers should not be used. If production conditions warrant, troughs may be installed to collect the BONDERITE M-CR 1001 AERO coating chemical run-off for reuse.

Long handled, window type brushes, clean cloths or synthetic sponges may be used to brush on the BONDERITE M-CR 1001 AERO.

SURFACE PREPARATION

Cleaning:
BONDERITE C-IC 33 or BONDERITE C-IC 79 are recommended for cleaning.

BONDERITE C-IC 33 is a phosphoric acid based cleaner which produces a chemically clean and corrosion free aluminum surface. Instructions for use of BONDERITE C-IC 33 are found in Technical Process Bulletin.

BONDERITE C-IC 79 is a multi-purpose phosphoric acid based cleaner, for most metals, which leaves the surface chemically clean and corrosion free. Instructions for use of BONDERITE C-IC 79 are found in Technical Process Bulletin.

Water Rinsing:
After cleaning, the metal must be thoroughly rinsed with water. Inadequate rinsing may contaminate an BONDERITE M-CR 1001 AERO immersion bath or result in a surface condition which may cause corrosion of the finished part.

APPLYING BONDERITE M-CR 1001 AERO

Buildup:
For spray application, BONDERITE M-CR 1001 AERO is two part with three part water.

For immersion application, BONDERITE M-CR 1001 AERO is diluted by mixing 25 parts of BONDERITE M-CR 1001 AERO and 75 parts of water for each 100 parts of bath volume required.

NOTE: Operators should be equipped with rubber gloves, aprons and goggles to avoid contact with the solution. Adequate ventilation should be provided.

Operation:
Time: 2 minutes to 5 minutes.
Temperature: room temperature to 100° Fahrenheit.

BONDERITE M-CR 1001 AERO coating chemical should not be allowed to dry on the metal surface. With spray application the surface should be rewet with fresh BONDERITE M-CR 1001 AERO several times during the treatment time. If drying does occur, rewet with BONDERITE M-CR 1001 AERO coating solution prior to water rinsing.

Selecting the size of the area to be treated at one time depends on the method of application, condition of the metal surface, method in which the surface was cleaned, temperature and part configuration.

Powdering of a chrome conversion coating can result from poor cleaning, drying, over reacting, or for other reasons. Powder can affect paint adhesion. Gently wipe and remove the powder, without abrading the chemical coating, with a dry, clean rag after the work has dried. Caution should be taken not to redeposit oils, lint or other soils back on the aluminum surface.

TESTING AND CONTROL

BONDERITE Titration:
Pour a 50 ml sample of the BONDERITE M-CR 1001 AERO bath into an iodimetric flask and dilute with water to approximately 100 ml. Add approximately 1 gram (1/2 teaspoon) of Reagent 2 and agitate the solution until the solid material is completely dissolved. Add approximately 10 ml of Reagent Solution 49 in 5 ml increments to the lip of the flask, raising the stopper slightly after each addition to allow the acid to run into the flask. Rinse the lip several times with water and replace the stopper.

Allow the sample to settle for approximately one minute, titrate with Titrating Solution 104 until a **straw** color is obtained. Add several milliliters of Indicator Solution 10 to the sample. The solution should turn blue-black. Continue to titrate with Titrating Solution 104 until the **blue-black** color disappears.

Record the number of milliliters of Titrating Solution 104 as the BONDERITE titration.
BONDERITE M-CR 1001 AERO titration range to be between 17 and 18 ml.

AFTER TREATMENT

Water Rinsing:
A thorough rinse with clean water is necessary to remove residual BONDERITE M-CR 1001 AERO coating chemical salts from the metal surface. Blistering and corrosion problems under paint are often the results of poor rinsing. Chemical salts trapped under a paint film will eventually result in blistering or corrosion problems.

Drying:
As an aid to drying, heating the treated part, blowing off with clean, dry, filtered, forced air or gently wiping with a dry, clean rag will lessen the time required. Do not allow the aluminum metal temperature to exceed 140 Fahrenheit.

Paint soon after the work is dry in order to prevent soils or oxidation from recontaminating the prepared metal surface.

STORAGE REQUIREMENTS

BONDERITE M-CR 1001 AERO coating chemical will freeze at 32° Fahrenheit. It is recommended that the product be stored where freezing will not occur. However, should it freeze, simply thaw it in a warm place and stir it prior to use.

WASTE DISPOSAL INFORMATION

Applicable regulations concerning disposal and discharge of chemicals should be consulted and followed.

Disposal information for the chemical products used in this process is given on the Material Safety Data Sheet for each product.

The processing bath is acidic and contains hexavalent chromium. Waste treatment and neutralization may be required prior to discharge to sewer.

PRECAUTION

Consult the appropriate Material Safety Data Sheets for safety and handling guidelines for the products listed in this bulletin.

Henkel Corporation | 32100 Stephenson Highway | Madison Heights, MI 48071
PHONE: (248) 583-9300 | FAX: (248) 583-2976 | www.henkelna.com/