

## BONDERITE® M-CR 1200 AERO

January 2025

### PRODUCT DESCRIPTION

BONDERITE® M-CR 1200 AERO provides the following product characteristics:

<b>Technology</b>	Metal pretreatment
<b>Product Type</b>	Conversion coating
<b>Application</b>	Immersion, spray, brush

A rapid process which forms a protective golden coloured conversion coating on aluminium and its alloys.

#### Application areas:

BONDERITE® M-CR 1200 AERO is a powdered chemical used to produce a protective coating on aluminum which ranges in colour from light iridescent golden to tan. The process is operated at room temperature. The coating produced minimizes corrosion and provides an improved bond for paint.

BONDERITE® M-CR 1200 AERO coating chemical, being listed on the Qualified Product List QPL for MIL-DTL-81706, is an approved material to be used by Method C (immersion processing) to produce Class 1A and 3 coatings, bare or unpainted, in accordance with Military Specification MIL-C-5541 B.

#### Technical data

##### (as supplied):

Appearance brown powder

### GENERAL INFORMATION

Prior to application it is necessary to read the **Safety Data Sheet** for information about precautionary measures and safety recommendations. Also, for chemical products exempt from compulsory labeling, the relevant precautions should always be observed.

#### Direction of use

##### Bath make-up:

For each 1,000 L of bath, add to the water with stirring or circulating by the pump add 7.5 to 15 kg BONDERITE® M-CR 1200 AERO .

#### Operating data

Points Cr (VI)	6.7 to 13.5
pH value	1.6 to 2.1
Temperature, °C	20 to 40
Time, min	1 to 5
Class 3 - time, min	0.25 to 3.0

#### Brush application

Acid-resistant (wood, rubber, stainless steel, or plastic) buckets, troughs, or other suitable containers are used to hold the diluted BONDERITE® M-CR 1200 AERO coating chemical solution. Lead, glass, tin or galvanized iron should not be used. Storing the solution in mild steel containers will result in a slow decomposition of the solution.

#### Spray and immersion application

Process piping and pumps should be constructed of 316 or 304 stainless steel alloys. Various formulations of plastic pipe may be used with recommended support spacing, Schedule-80 being generally recommended. PVC Type I is limited to maximum process temperatures of 140°F. (60°C). CPVC and PP may be used up to a maximum process temperature of 190°F (88°C). PVDF may be used for all expected operating temperatures and may reduce the rate of scale build up in process piping. The nozzles should be fabricated from 316 stainless steel..

Heat exchanger plates should be polished 316 stainless steel. If gas fired burner tubes are used, they should be made of schedule - 80 mild steel pipe or equivalent. All process circulation pump seals, valve seats, door seals, etc., which come into contact with the process solution and occasional acid equipment cleaners, should be FKM or PTFE may be used, but its life will be shorter. Chemical feed pump parts and other elastomers which may come into contact with the concentrated replenishing chemical should be FKM or PTFE. Again, EPDM may be used, but its life will be shorter.

#### Process description

1. Clean
2. Rinse
3. Deoxidize
4. Rinse
5. Coat with BONDERITE® M-CR 1200 AERO
6. Rinse
7. Rinse with deionized water
8. Dry

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

**Bath control****BONDERITE® M-CR 1200 AERO titration:**

1. Pipette 10 mL sample of the BONDERITE® M-CR 1200 AERO coating chemical bath into a flask and dilute with 50 mL distilled water.
2. Add 20 mL of 25 % H<sub>2</sub>SO<sub>4</sub> and 2-3 g potassium iodide.
3. Titrate against 0.1 N sodium thiosulphate solution until the colour changes from brown to yellow.
4. Add several mL of soluble starch solution to the sample and continue the titration until the blue-black colour disappears.
5. Record the number of mL of 0.1 N sodium thiosulphate solution used as Cr(VI)-points.

**Replenishment**

Add 1.1 kg of BONDERITE® M-CR 1200 AERO per 1000 L of bath for each Cr(VI)-point lacking.

**pH control**

A pH determination should be made each time the BONDERITE® M-CR 1200 AERO coating chemical bath has been replenished.

The optimum pH lies between 1.6 and 2.1.

**Note**

The pH of the BONDERITE® M-CR 1200 AERO is adjusted with diluted caustic solution and nitric acid, respectively.

**Storage**

Store product in the unopened container in a dry location. Storage information may be indicated on the product container labeling.

**Optimal storage: -10 to 40°C**

Product may show slight caking in time, this can easily be reverted and does not impact material performance.

Material removed from containers may be contaminated during use. Do not return product to the original container. Henkel cannot assume responsibility for product which has been contaminated or stored under conditions other than those previously indicated. If additional information is required, please contact your local Henkel representative.

**Not for product specifications**

The technical data contained herein are intended as reference only. Please contact your local quality department for assistance and recommendations on the specifications of this product.

**Data ranges**

The data contained herein may be reported as a typical value. Values are based on actual test data and are verified on a periodic basis.

Temperature/Humidity Ranges: 23°C / 50% RH = 23±2°C / 50±5% RH

**Conversions**

$(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$   
 $\text{kV/mm} \times 25.4 = \text{V/mil}$   
 $\text{mm} / 25.4 = \text{inches}$   
 $\mu\text{m} / 25.4 = \text{mil}$   
 $\text{N} \times 0.225 = \text{lb}$   
 $\text{N/mm} \times 5.71 = \text{lb/in}$   
 $\text{N/mm}^2 \times 145 = \text{psi}$   
 $\text{MPa} \times 145 = \text{psi}$   
 $\text{N}\cdot\text{m} \times 8.851 = \text{lb}\cdot\text{in}$   
 $\text{N}\cdot\text{m} \times 0.738 = \text{lb}\cdot\text{ft}$   
 $\text{N}\cdot\text{mm} \times 0.142 = \text{oz}\cdot\text{in}$   
 $\text{mPa}\cdot\text{s} = \text{cP}$

**Disclaimer**

The information provided in this Technical data sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. The product can have a variety of different applications as well as differing application and working conditions in your environment that are beyond our control. Henkel is, therefore, not liable for the suitability of our product for the production processes and conditions in respect of which you use them, as well as the intended applications and results. We strongly recommend that you carry out your own prior trials to confirm such suitability of our product. Any liability in respect of the information in the Technical data sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

**In case products are delivered by Henkel Belgium NV, Henkel Electronic Materials NV, Henkel Nederland BV, Henkel Technologies France SAS and Henkel France SA please additionally note the following:**

In case Henkel would be nevertheless held liable, on whatever legal ground, Henkel's liability will in no event exceed the amount of the concerned delivery.

**In case products are delivered by Henkel Colombiana, S.A.S. the following disclaimer is applicable:**

The information provided in this Technical Data Sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. Henkel is, therefore, not liable for the suitability of our product for the production processes and conditions in respect of which you use them, as well as the intended applications and results. We strongly recommend that you carry out your own prior trials to confirm such suitability of our product. Any liability in respect of the information in the Technical Data Sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.



**In case products are delivered by Henkel Corporation, or Henkel Canada Corporation, the following disclaimer is applicable:**

The data contained herein are furnished for information only and are believed to be reliable. We cannot assume responsibility for the results obtained by others over whose methods we have no control. It is the user's responsibility to determine suitability for the user's purpose of any production methods mentioned herein and to adopt such precautions as may be advisable for the protection of property and of persons against any hazards that may be involved in the handling and use thereof. In light of the foregoing, **Henkel Corporation specifically disclaims all warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose, arising from sale or use of Henkel Corporation's products. Henkel Corporation specifically disclaims any liability for consequential or incidental damages of any kind, including lost profits.** The discussion herein of various processes or compositions is not to be interpreted as representation that they are free from domination of patents owned by others or as a license under any Henkel Corporation patents that may cover such processes or compositions. We recommend that each prospective user test his proposed application before repetitive use, using this data as a guide. This product may be covered by one or more United States or foreign patents or patent applications.

#### **Trademark usage**

Except as otherwise noted, all trademarks in this document are trademarks of Henkel Corporation in the U.S. and elsewhere. ® denotes a trademark registered in the U.S. Patent and Trademark Office.

Reference 3