

Chemical Coating/Chemical Conversion Coating

IRIDITE14-2

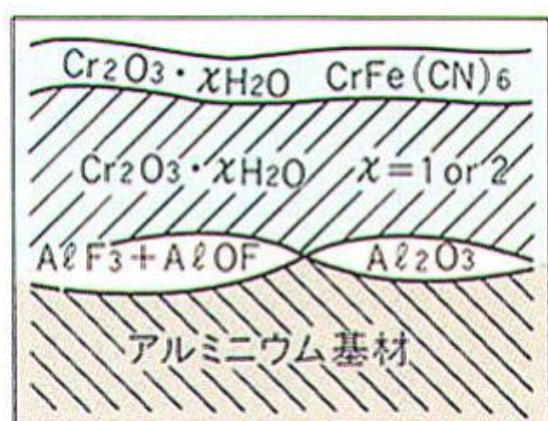
Alodine 1200, 1000

Chemical Conversion Coatings

Chemical conversion coatings, also called chemical coatings, are protective coatings formed on aluminum surfaces by utilizing chemical reactions.

Chemical conversion coatings have been generally used for the purposes of providing corrosion resistance properties for aluminum and improving paint adhesion on aluminum.

Chemical conversion coatings can be produced with a variety of treatments. The most reliable chemical conversion coating is chromate coating produced by the reaction between the aluminum surface and the treatment solution.



Structural drawing of chromate coating

*Chromium is indicated as Cr (III) in the figure, but Cr (VI) is also present.

図中語句	
日本語	英語
アルミニウム基材	Aluminum substrate

The hexavalent chromium chromate coating has high corrosion resistance and self-healing properties. At the Riken Alumite Industry, we use either Iridite 14-2 or Alodine 1200 as a colored chromate treatment agent, and Alodine 1000 as a colorless chromate treatment agent. Chemical conversion coatings produced at our company comply with various standards including the U.S. Department of Defense standard MIL-DTL-5541F Type I (MIL-C-5541) Class 1A/Class 3. (Note: Type I covers coatings treated with the conventional and approved treatment agents and Type II covers coatings treated with Cr (VI)-free treatment agents.)

Iridite 14-2: Manufactured by MacDermid, listed on the QPD-81706 (complying with the MIL-DTL-

81706 Type I Class 1A/3)

Alodine: Manufactured by Nihon Parkerizing Co., Ltd. (licensed by Henkel), listed on the Ministry of Defense QPL-81706

The size of the treatment tank permanently installed at our facility is 1000×2200×1500 (for Iridite 14-2 and Alodine 1000), but we will also consider the possibility of processing large products if required. (We also accept a product with a volume larger than that of the treatment tank. For ring-shaped products, we have successfully processed products with up to around $\phi 2600$ with our permanent equipment.)

We also have a large-scale processing line for Alodine 1000 and 1200. Maximum processable size is 900×1100×7000mm.

Features

◎Color: Colored chromate coating provides a beautiful appearance with a light yellow or yellow brown color. Meanwhile, colorless chromate coating allows the texture of the metal surface of aluminum to be utilized as it is.

◎Corrosion resistance: With excellent corrosion resistance properties, chemical conversion coatings are applicable as an anti-rust coating.

◎Paint adhesion: With excellent adhesion between the paint and the chemical conversion coating, chemical conversion coatings are used as an undercoating for painting.

◎Electrical conductivity: With an extremely small electrical resistance, chemical conversion coatings are applicable to electrical and electronic components that require electrical conductivity. With particularly low contact resistance, Alodine 1000 proves useful in the case where electrical conductivity is required.

◎Treatability: Chemical conversion coating is also applicable to products with complex shapes and easily deformable products.

Touch-up treatment using brush painting technique and partial treatment are also available.

Standard performance and quality assurance -----

◎Compliant with the MIL-DTL-5541 Type I (MIL-C-5541) Class 1A standard: Colored chromate coating where the primary coating performance requirement is corrosion resistance and where the coating is used as an undercoating for painting; Two types of treatment agents are available which are Iridite 14-2 and Alodine 1200.

Corrosion resistance Salt spray test for 168 hours (2024-T3)

◎Compliant with the MIL-DTL-5541 Type I (MIL-C-5541) Class 3 standard: Corrosion resistant coating where electric conductivity is required. Colored or colorless chromate coating: Iridite 14-2 is available as a colored chromate treatment agent and Alodine 1000 as a colorless chromate treatment agent.

Corrosion resistance: Salt spray test for 168 hours (6061-T6)

Contact resistance: 5000 $\mu\Omega$ or less in the test specified in the MIL-DTL-81706 standard (10000 $\mu\Omega$ or less after salt spray test)

Precautions for Use -----

◎The coating is soft and thin, which proves ineffective in protecting products from scratches, etc. Do not apply the coating to sliding parts.

◎When used without painting, the corrosion resistance may reduce when the coating is subjected to heat of 60°C or higher. During baking finishing, cover any unpainted surface of the coating.

◎Chemical conversion coatings contain Cr (VI). However, products treated with chemical conversion coating do not conflict with the regulations on chemical substances contained in products, with the exception of the products having large surface with respect to the product weight, such as thin plates and small screws. However, the matter mentioned above is not applied to the products subject to regulation of substances prohibited from in-process use.