

Title (en)
METAL DISPLACEMENT SOLUTION AND CORRESPONDING METHOD FOR SURFACE TREATMENT OF ALUMINUM OR ALUMINUM ALLOY

Title (de)
METALLVERDRÄNGUNGSLÖSUNG UND ENTSPRECHENDES VERFAHREN ZUR OBERFLÄCHENBEHANDLUNG VON ALUMINIUM ODER ALUMINIUMLEGIERUNGEN

Title (fr)
SOLUTION DE DÉPLACEMENT DE METAL ET PROCÉDÉ CORRESPONDANT POUR LE TRAITEMENT DE SURFACE DE L'ALUMINIUM OU DE L'ALLIAGE D'ALUMINIUM

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Application
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Abstract (en)
The present invention aims to provide a metal displacement solution that can provide good adhesion to a plating film (metal film), and a method for surface treatment of aluminum or an aluminum alloy using the metal displacement solution. Included is a metal displacement solution which contains a zinc compound, a nickel compound, a germanium compound, and a fluorine compound.

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Citation (applicant)
• JP 2000256864 A 20000919 - OKUNO CHEM IND CO
• JP 2020196914 A 20201210 - OKUNO CHEM IND CO
• JP 2009127101 A 20090611 - UYEMURA C & CO LTD
• JOURNAL OF THE SURFACE FINISHING SOCIETY OF JAPAN, vol. 64, no. 12, 2013, pages 645 - 649
• JOURNAL OF THE SURFACE FINISHING SOCIETY OF JAPAN, vol. 66, no. 12, 2015, pages 658 - 665
• JOURNAL OF THE SURFACE FINISHING SOCIETY OF JAPAN, vol. 47, no. 9, 1996, pages 802 - 807

Citation (search report)
• [X] US 3930081 A 19751230 - SHINOMIYA HIROSHI, et al
• [Y] JP 2010163640 A 20100729 - NIHON PARKERIZING
• [Y] US 2005008788 A1 20050113 - JOSHI NAYAN H [US], et al

Cited by
EP4293136A1

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