

UNITED STATES PATENT OFFICE

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PROCESS FOR GRINDING ETCHING PLATES MADE OF MAGNESIUM ALLOYS FOR
PLANOGRAPHIC PRINTING

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This invention relates to a process for treating etching plates made of magnesium alloys for planographic or lithographic plates.

The metal plates for planographic printing are supplied to the user in a highly polished condition to ensure that they are perfectly suitable for use. The sensitized printing film does not easily adhere to such highly polished surfaces, and it is therefore necessary to reduce the polish to some extent and sometimes also to remove a certain fatty film. In the case of zinc and copper plates, this is usually effected by grinding them with a suspension of fine cleansing powders, such as emery, levigated chalk or the like, in water; and also, in many instances, by a slight preliminary etching the plates being treated, for a short time, with a very weak aqueous solution of nitric acid. When metal plates composed of magnesium alloys are used, it has been observed that, in this treatment, involving the application of aqueous solutions or suspensions, hydrogen bubbles are disengaged on the surface of the plates and become imprisoned by the copying layer, in consequence of which troubles arise in printing.

As a result of experiments it has now been ascertained that, with any type of water encountered in practice, the plates can be etched, with complete suppression of the liberation of hydrogen due to a kind of etching effect of the water, if the cleansing powders used in the treatment are mixed with bichromate. The bichromate may be present in these mixtures in excess of the quantity corresponding to its solubility in water. The rinsing operation is also preferably performed with water containing bichromate, for instance, 1% of ammoniumbichromate. After this preliminary treatment, the copying layer will be entirely free from bubbles.

Polishing compositions according to our invention may have, for example, the following compositions:

- (a) 70 parts of levigated chalk and 120 parts of a 10% solution of ammoniumbichromate.
- (b) 100 parts of finest emery powder and 5 parts of potassiumbichromate.
- (c) 30 parts of finest emery powder and

40 parts of levigated chalk are made up to a pulp by thoroughly mixing with 65 parts of a 10% solution of ammoniumbichromate.

Said standard-compositions may be made ready for use by adding water in a quantity sufficient to make a solution containing at least about 0.3% of bichromate.

In comparison with the known process of using copying layers which are inert towards the metal by reason of their content of bichromate, the new process constitutes an improvement in so far as it is based on the further discovery that the liberation of hydrogen is caused by the preparatory treatment, and can therefore be prevented only by suitably modifying said preparatory treatment.

We claim:

1. The process which comprises grinding etching plates made of magnesium alloys for planographic printing with a grinding medium in the presence of a dilute aqueous solution of a bichromate.

2. The process which comprises grinding etching plates made of magnesium alloys for planographic printing with a grinding medium in the presence of a dilute aqueous solution of a bichromate, and rinsing said plates in a dilute aqueous solution of said bichromate.

3. A composition for grinding etching plates of magnesium alloys, comprising a grinding medium and a water soluble bichromate.

4. A composition for grinding etching plates of magnesium alloys, comprising a grinding medium and a water soluble bichromate, the bichromate contents ranging from about 3 parts to about 20 parts to 100 parts of said grinding medium.

5. A composition for grinding etching plates of magnesium alloys, comprising a mixture of approximately 30 parts of emery powder and 40 parts of levigated chalk and 65 parts of a 10% aqueous solution of bichromate of ammonium.

In testimony whereof we have hereunto set our hands.

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