Patented May 12, 1942

2,282,448

UNITED STATES PATENT OFFICE

2,282,448

PRINTING PLATE AND COMPONENT FOR MAKING THE SAME

Hans Beck, Ludwigshafen-on-the-Rhine, and Walther Kuehne, Mannheim, Germany, assignors, by mesne assignments, to E. I. du Pont de Nemours and Company, Wilmington, Del.

No Drawing. Application January 22, 1940, Serial No. 315,024. In Germany January 13, 1939

4 Claims. (Cl. 101—395)

This invention relates to printing plates and other units made from superpolyamides.

It is known to make printing plates and components therefor, as for example clichés and types, from organic plastic materials by pressure- or injection-molding processes. The greater part of plastic materials, however, is not sufficiently resistant to heat and by reason of their inferior surface hardness is worn out in a pretty short time when printing big editions. The plates must be resistant to cleaning agents such as petrol or benzene hydrocarbons applied after use and capable of being repeatedly re-cast and used again, like type metal or other printing metals. For these reasons cellulose derivatives or hardenable artificial resin compositions were unsuitable to be generally adopted for practical use in the above field.

We have now found that superpolyamides, i. e. high-molecular condensation or polymerization products of the polypeptide type, capable of being drawn into threads, which are obtainable for example by heating $\omega.\omega'$-dicarboxylic acids together with $\omega.\omega'$-diamines or the corresponding salts thereof, for example adipic acid and hexamethylenediamine, or by heating ω-aminocarboxylic acids, for example ϵ-aminocaproic acid, or lactames, for example caprolactame, are excellently suitable as materials for printing plates and component parts therefor. These materials, which may also be incorporated with fillers or pigments, are pale in color and hence facilitate the legibility of the printing block. Their specific weight is only slightly above 1.

The superpolyamides may be used for the preparation of printing profiles of most elaborate design, individual types, composed types or clichés. They may be worked for this purpose principally by injection-moulding, but also by casting and pressure-moulding or with suitable cutting tools, for example gravers. Even very thin lines, for example the finest lines of etchings, may be reproduced with great sharpness. After moulding they solidify very rapidly and then possess great toughness, strength and surface hardness which properties remain constant over a temperature range of from about —50° to more than 200° C. For the said reason the printing plates are highly fracture-proof and therefore thin printing plates may be easily flexed and immediately be used in rotary printing. Owing to their great surface hardness very large editions may be printed without the profiles of the types being markedly worn out. The superpolyamides being insoluble in the standard solvents, the printing plates may also be easily cleaned after use or when they are fouled up with printing ink. The clichés, printing plates etc. after use may also be re-cast or moulded again. The superpolyamides have the most desirable property of being non-inflammable and resistant to most chemicals.

What we claim is:

1. A printing form composed essentially of a superpolyamide.

2. A printing form composed essentially of polymeric hexamethylene adipamide.

3. A printing letter type composed essentially of a superpolyamide.

4. A printing letter type composed essentially of polymeric hexamethylene adipamide.

HANS BECK.
WALTHER KUEHNE.