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PROCESS FOR THE PRODUCTION OF
MOLDED ARTICLES BY PRESSING

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The present invention relates to a process for the production of molded bodies for any kinds of articles, insulating parts and the like by pressing, the main feature of this process being that carbonic fuels or waste fuels, such as anthracite, brown coal, peat or lignine, are intimately incorporated with organic bases and that the molding compositions thus obtained are molded under pressure into the desired shape, if required, in the heat. It has been proved that it will be possible to obtain in this manner pressed molded bodies of extraordinary strength and which are substantially free from odour. The molding compositions may be pressed into any desired shape, so that it will be possible to produce, in accordance with the present process, sheets, plates, bars, shaped parts or form-pieces, switches, handles, commodities of the most different kind and description, or parts thereof, in short shaped or molded pieces of the most varying forms, dimensions and the like. Moreover, it will be possible, to combine the pressed or molded bodies with pieces of another material, e. g. with metal parts of any desired shape, by inserting the metallic parts in an appropriate manner into the molds for pressing the articles in question before the pressing operation. Materials of other kind may also be added to the molding compositions before the pressing operation, such as filling materials, softening agents, fluxes and the like.

The pressed materials obtained in accordance with the present invention may be worked mechanically by means of saws, drills, files and on the lathe and take a brilliant polish. They further possess an extraordinarily high insulating capacity, this feature being proved by the fact, that, on being rubbed by means of wool, they will be charged electrically and retain this electric charge for a long period.

Organic bases of any kind may be employed in the process according to the present invention. It is obvious, that in first line such organic bases will have to be considered for this purpose, which are easily to be obtained and are not too expensive, as for instance aniline, toluidine, naphthylamine, pyridine, piperidine and choline. If desired mixtures of different organic bases among one another or with other substances may be employed.

In the following some embodiments of the present process are indicated by way of example in detail:

(1) 1000 parts by weight of pulverized brown coal are kneaded during 3 hours in a kneading

machine at about 80° C. together with 1000 parts by volume of a benzene solution containing 100 parts by weight of aniline. The solvent then is distilled off in vacuo, and the kneaded product is allowed to cool while stirring it. The product thus obtained is molded at a temperature of about 150° C. and under a pressure of 200 to 600 atmospheres.

(2) 1000 parts by weight of pulverized lignine are kneaded during 3 hours at about 80° C. together with 1000 parts by volume of a benzene solution containing 100 parts by weight of aniline. The further treatment corresponds that indicated in Example 1.

(3) 1000 parts by weight of powdered lignite are kneaded during 3 hours in a kneading machine at about 80° C. together with a benzene solution containing 100 parts by weight of pyridine and 50 parts by weight of caoutchouc. After the distilling off of the solvent, the obtained product is cooled while stirring and then molded under a pressure of 200 to 600 atmospheres at about 150° C.

(4) 1000 parts by weight of powdered brown coal are mixed by stirring with an excess of toluidine at about 80° C. Hereafter the greatest part of said toluidine is distilled off in vacuo. If it is desired to obtain a material which is perfectly free of unbound toluidine, the material then is yet washed with a neutral solvent for toluidine. The remaining material is hydraulically pressed into the desired shape at 150° to 180° C. under a pressure of 200 to 600 atmospheres.

The molding pressure employed may also be higher or even lower than indicated in the examples given above. Anthracite may be treated in a corresponding manner. Other mechanical means instead of a kneading machine may be used in treating the carbonic starting materials with the organic bases for bringing them into intimate contact with one another and then subjecting them to the reaction process desired. The most different neutral solvents for such bases may be employed.

As filling materials in first line fibrous materials of the most varying kinds, such as asbestos, wood fibres, cotton fibres and the like may be employed, which are adapted to ensure a reinforcement of the material or enhance its heat resisting properties. As softening agents as well those substances may be made use of, which are known and employed in the industry of synthetic resins, as those which are used in the industry of synthetic resins, as those which are used

in the industry of artificial silk. As fluxes such substances are to be employed in first line, which favour a gliding or sliding of the molding composition in the mold during the pressing process.

5 For this purpose a great part of those substances may be used, which also may be used as softening agents. Above all, however, caoutchouc may be employed for this purpose, this material having proved to be particularly adapted therefor. For
10 instance, small quantities of caoutchouc, preferably in a dissolved or emulsified state, may be added to the molding composition, if desired together with vulcanizing substances, so that during the pressing process taking place under heat,
15 on the one hand the rising property of the molding composition within the mold is increased, whilst on the other hand the caoutchouc is vulcanized towards the end of the pressing process or even by a subsequent heat treatment.

20 Having now particularly described and ascertained the nature of my said invention, what we claim is:—

1. A process for the production of molded bodies which consists in first preparing a molding composition by intimately mixing an aromatic amine with one or more powdered carbonic fuels selected from the group consisting of anthracite, brown coal, lignite and peat, and then molding said composition under pressure and at a temperature of from 150–180° C., said heat and pressure molding resulting in hard heat resistant articles having high electrical insulating properties.

2. A process for the production of molded bodies which consists in first preparing a molding composition by intimately mixing an aromatic amine with one or more powdered carbonic fuels selected from the group consisting of anthracite, brown coal, lignite and peat, and then molding said composition under a pressure of 200–600 atmospheres and at a temperature of from 150–180° C., said heat and pressure molding resulting in hard heat resistant articles having high electrical insulating properties.

3. A process for the production of molded bodies which consists in first preparing a molding composition by intimately mixing, at about 80° C., an aromatic amine with one or more powdered carbonic fuels selected from the group consisting of anthracite, brown coal, lignite and peat, and then molding said composition under pressure and at a temperature of from 150–180° C., said heat and pressure molding resulting in hard heat resistant articles having high electrical insulating properties.

4. A process for the production of molded bodies which consists in first preparing a molding composition by intimately mixing an aromatic amine with a comparatively small amount of a filler and one or more powdered carbonic fuels selected from the group consisting of anthracite, brown coal, lignite and peat, and then molding said composition under pressure and at a temperature of from 150–180° C., said heat and pressure molding resulting in hard heat resistant articles having high electrical insulating properties.

5. A process for the production of molded bodies which consists in first preparing a molding composition by intimately mixing an aromatic amine with a comparatively small amount of a softening material and one or more powdered carbonic fuels, selected from the group consisting of anthracite, brown coal, lignite and peat, and then molding said composition under pressure and at a temperature of from 150–180° C. said heat and pressure molding resulting in hard heat resistant articles having high electrical insulating properties.

6. A process for the production of molded bodies which consists in first preparing a molding composition by intimately mixing aniline with one or more powdered carbonic fuels selected from the group consisting of anthracite, brown coal, lignite and peat, and then molding said composition under pressure and at a temperature of from 150–180° C., said heat and pressure molding resulting in hard heat resistant articles having high electrical insulating properties.

7. A process for the production of molded bodies which consists in first preparing a molding composition by intimately mixing pyridine with one or more powdered carbonic fuels selected from the group consisting of anthracite, brown coal, lignite and peat, and then molding said composition under pressure and at a temperature of from 150–180° C., said heat and pressure molding resulting in hard heat resistant articles having high electrical insulating properties.

8. A process for the production of molded bodies which consists in first preparing a molding composition by intimately mixing toluidine with one or more powdered carbonic fuels selected from the group consisting of anthracite, brown coal, lignite and peat, and then molding said composition under pressure and at a temperature of from 150–180° C., said heat and pressure molding resulting in hard heat resistant articles having high electrical insulating properties.

9. A process for the production of molded bodies which consists in first preparing a molding composition by intimately mixing an aromatic amine with anthracite, and then molding said composition under pressure and at a temperature of from 150–180° C., said heat and pressure molding resulting in hard heat resistant articles having high electrical insulating properties.

10. A process for the production of molded bodies which consists in first preparing a molding composition by intimately mixing an aromatic amine with lignite, and then molding said composition under pressure and at a temperature of from 150–180° C., said heat and pressure molding resulting in hard heat resistant articles having high electrical insulating properties.

11. A molded body prepared in accordance with the process of claim 1.

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