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PROCESS OF DEGUMMING TEXTILE PLANTS

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The object of the present invention is the degumming of textile plants and vegetables based on the action of hydrocarbon sulfonic acids on the pectins and gummy matter which act as binders for the fibrous tissue of the plants.

The object of the treatment is to convert the textile plants into fibres ready for spinning and vegetable matter into pulp suitable for paper manufacture.

This result is obtained by treating the raw material with solutions of hydrocarbon sulfonic acids. For certain strengths of solutions, the action of the hydrocarbon sulfonic acids is distinctly peptizing and dissolving, so that the pectins, gums and colloidal substances are partly dissolved, or loosened and dispersed, and the fibrous matter is liberated and ready to be subjected to the subsequent mechanical treatment necessary for their utilization in industry.

The preparation of the fibrous material is accomplished in two separate stages and may be carried out in the hot or in the cold, depending on whether a less rapid or more rapid action is required and on the quality and softness of the fibre desired. According to the nature of the fibres to be treated, the treatment is as follows:

1. Treatment with hydrocarbon sulfonic acids.—The crude fibres are given a preliminary soaking and are then subjected to treatment in a bath of a hydrocarbon sulfonic acid, either alone or with an addition of salt. The strength of the solution varies according to the material being treated. The duration of treatment also varies according to whether it is performed in the hot or in the cold.

2. Neutralization.—When the peptizing action of the above bath of sulfonic acid, with or without salt, is considered sufficient, a neutralizing operation is resorted to.

This operation, prior to which the fibres may be rinsed, is conducted either in a soap bath, or in an alkaline bath, according to the sort of fibre under treatment and containing caustic soda or carbonate of soda, or in a mixture of said soap and alkaline bath.

Examples of Treatment

The following examples describe the application of the process to the treatment of crude hemp fibre in pulped thongs.

Example 1—Cold process.—The crude fibres are sufficiently soaked to soften them thoroughly and remove excess of chlorophyl, and are then immersed in a bath composed of equal parts of salt (chloride of sodium) and for example a naphthaline sulfonic acid, the strength of the bath being made to 4° Baumé. The fibres are allowed to steep in the solution, without stirring, until they are sufficiently softened. This may need about twelve hours. The fibres are then washed in running water and neutralized with the right base for the fibre treated.

Example 2—Hot process.—The same process is used but the strength of the bath is reduced to 1 deg. Baumé and the temperature should not be more than 60° Cent. for textile fibres suitable for spinning. It may however be raised to 100° Cent. if paper pulp is being prepared.

The example given for hemp may be adapted to all industrial textile fibres, such as sisal hemp, flax, ramie, alfalfa, jute, etc., each textile necessitating precautions peculiar thereto.

The process may also be used for stripping spun and raw threads in order to prepare them for dyeing and bleaching, and the stripping operation may be regarded as a second degumming.

I claim:

1. Process of degumming textile plants and vegetable matter consisting in treating the textiles in a bath of hydrocarbon sulfonic acids with a view to peptizing the gums and pectins and in neutralizing the thus peptized

material by subjecting the latter to the action of an alkaline bath.

2. Process of degumming textile plants and vegetable matter consisting in treating the textiles in a bath formed by mixing together hydrocarbon sulfonic acids and common salt with a view to peptizing the gums and pectins and thus releasing the fibres.

3. Process of degumming textile plants and vegetable matter consisting in treating the textiles in a bath formed by mixing together hydrocarbon sulfonic acids and common salt with a view to peptizing the gums and pectins and thus releasing the fibres, and in neutralizing the thus treated material by subjecting the latter to the action of an alkaline bath.

4. Process of degumming textile plants and vegetable matter consisting in immersing the material in a bath of naphthaline sulfonic acid until it is peptized, in rinsing the fibres thus released, and in neutralizing said fibres with a suitable base.

5. Process of degumming textile plants and vegetable matter consisting in immersing the material in a bath formed by a mixture of naphtaline sulfonic acid and common salt with a view to peptizing said material, in rinsing the fibres thus released and in neutralizing said material by immersing it in a mixed alkaline and soap bath.

6. Process of degumming raw hemp fibre which consists in soaking the fibre in water to remove excess of chlorophyl, in immersing the fibre in a bath composed of a naphtaline sulfonic acid and common salt, in heating the bath to a temperature of 60° C. approximately, in rinsing the thus treated fibre, and in neutralizing the fibre with a suitable base.

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