

# UNITED STATES PATENT OFFICE

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## WASHING COMPOSITION

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1 Claim. (Cl. 87—5)

The principal object of the invention is the provision of a new and improved washing composition that is especially adapted for use in laundry work with or without the addition of soap.

Another object of the invention is the provision of a new and improved washing composition having superior detergent qualities.

A further object of the invention is the provision of a new and improved composition that is inexpensive to prepare, efficient in use and that has superior detergent or cleaning properties.

Other and further objects and advantages of the invention will appear from the following description.

In the use of washing compounds the detergent properties are greatly increased if solid matter in a finely divided state be present in the composition in order that the same may assist in the mechanical removal of the dirt from the fabrics. It has been proposed to add the common volcanic ash and the like to the washing compounds, but this is objectionable because the relatively large particles abrade and wear out the fabric, and because of the lack of uniformity of suspension of the ash in the product since the same tends to settle out of a fluid mixture.

The present invention seeks to remedy these defects by the provision of a new and improved washing composition that has solid matter uniformly suspended in the fluid composition and is of such a nature and so finely divided that, while it efficiently removes the dirt and grease from the fabrics, the particles are so small that they will not abrade the same to any material extent.

Bentonite is a great absorbent, and also emulsifies the oils and greases in the fabrics and assists in mechanically removing the dirt from the fabric. It will emulsify mineral oils and greases as well as oils and fats of vegetable and mineral origin. These properties are greatly enhanced when the bentonite is treated to give it the proper hydrogen ion concentration.

Bentonite swells and forms a gel when mixed with a certain proportion of water. It is a typically negative suspensoidal colloid, that is, its particles are solid and negatively charged, and with the addition of an electrolyte, this charge decreases until with the proper concentration the whole is sedimented in a gelatinized form. It has been found that by further adding an electrolyte to this gelatinized mass the same will again become highly fluid even more than a straight mixture of water and bentonite.

When the bentonite has been treated with the proper amount of an electrolyte to secure this

maximum fluid effect, it appears to be the most highly efficient in removing dirt and grease from the clothing that is being laundered.

In laundry work, it is desirable that the detergent be in a highly fluid state preferably in liquid form so that the same may be readily pumped from a common reservoir to the various working vats as required in the operation of the laundry washing machinery. By adding the proper amount of an electrolyte, the bentonite aqueous mixture is reduced to its maximum fluidity and in such condition it may be pumped to different portions of the plant at a minimum expense. This is considered an important feature of the invention.

Bentonite is less expensive than the usual alkaline washing compounds and consequently its use in this relation will, to that extent, reduce the cost of production of this class of compounds.

Since the alkalies are of themselves useful in laundry work, as they emulsify the greases and oils contained in the clothes, their use with the bentonite not only assists in emulsification but also reacts on the bentonite to cause it to become more active as a fabric cleansing agent.

Bentonite may be treated with a large number of different compounds to impart to it this added cleansing property.

Any of the following different mixtures added to the laundry water give satisfactory results—

	Parts
1. Bentonite.....	50 to 70
Soda ash.....	30 to 50

Instead of using soda ash, caustic soda may be used as follows—

	Parts
2. Bentonite.....	75 to 85
Caustic soda.....	15 to 25

The following also may be used—

	Parts
3. Bentonite.....	75 to 80
Tri-sodium phosphate.....	10 to 30

Or—

	Parts
4. Bentonite.....	75 to 85
Sodium borate.....	15 to 25

Sodium silicate may also be used in proportions ranging from 20% to 40%. All of the neutral soda salts, such as sodium chloride, sodium sulphate, sodium nitrate and the other corresponding potassium salts may be employed with

bentonite for obtaining the proper hydrogen ion concentration.

In laundry use soap may be used along with all of these mixtures for assisting in emulsifying the oils and greases contained in the fabrics. Soap and bentonite both emulsify the mineral oils and greases as well as the oils, fats and greases of animal and vegetable origin.

The following soluble salts formed from metals of the alkaline earths and heavy metals such as calcium chloride, magnesium chloride, magnesium sulphate, calcium sulphate, zinc chloride, zinc sulphate, aluminum sulphate, ferric chloride, silver nitrate, lead acetate and the like may be used in like manner to increase the cleansing efficiency of bentonite, but soap cannot be used with them as a washing compound owing to the chemical reaction between the soap and these compounds.

In commercial production, the bentonite and the soda ash or other alkaline compounds are ground and thoroughly mixed in the dry state and are preferably shipped in containers in that state to the laundries or other consumers where the aqueous mixture is made preparatory to the use of the same as a washing composition.

What I claim, therefore, is:

A non-gel fabric cleaning composition in liquid form comprising water into which has been dispersed 50 to 70 parts of bentonite, 30 to 50 parts of soda ash for maintaining the bentonite in a highly fluid condition beyond the maximum gel effect on the bentonite and a small amount of soap.

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