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(54) Title: COMPOSITION OF MATTER FOR CAT LITTER

(57) Abstract: A granular composition for cat litter is disclosed, comprising a cellulose based vegetable product and a salt of acidic pyrophosphate with an alkaline or alkaline earth metal. Preferably the cellulose based vegetable product is wood pulp and the metal forming the salt with the acidic pyrophosphate is sodium. The granular product of the invention has a high absorption, is easily disposable and environmental friendly.



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"COMPOSITION OF MATTER FOR CAT LITTER"

The present invention relates to a granular composition for cat litter.

Compositions for cat litters are generally granular products that should have a good property of absorbing liquids, abating odours and environmentally friendly and easy disposal. All the above mentioned characteristics depend upon the kind of material used, more particularly grain size, density and chemico-physical properties.

Several types of litter are available on the market, among which one can cite: sea foam, which is a highly absorbent product adapted to absorb up to 90% of its weight and indeed only 10-15% is transformed into slush; bentonite having a good absorption (equal to 70% of its weight) but also a very low hardness so that in contact with urine it forms unpleasant round slush lumps that must be taken out from the container tray any time these lumps are formed because besides being unaesthetic, evil-smelling and sticky to the cat paws, they are also a hindrance for the animal who does not urinate until litter is being cleaned; tuff that on one hand has a high hardness and generates only a little percentage of slush, on the other hand having a poor absorption (between 50 and 60%) causes liquid to remain on the tray bottom generating unpleasant odours; synthetic products of natural elements and the above mentioned compounds in order to lighten the material and make it more easily disposable.

Therefore, an object of the present invention is to provide a material having a high absorption, adapted to abate odours and at the same time prevent slush formation.

Another object of the invention is to provide an environmentally friendly material that can be easily and readily disposed by the user, anti-bacterial and easy to be removed by the cat.

The above mentioned objects and further advantages are attained by the granular composition for cat litter comprising

a cellulose based vegetable products and a salt of acidic pyrophosphate with an alkaline or alkaline earth metal according to the features of claim 1. Advantages and characteristics are indicated in the dependent claims.

The term cellulose based vegetable product means a compound obtained by processing wood mainly comprising cellulose.

The cellulose based vegetable product according to the invention is preferably selected from the group comprising wood pulp, wood shavings, corn cob (corn cellulose), paper and cardboard. Different kinds of trees may be used for producing the mentioned vegetable products and more particularly poplar and birch tree. More preferably the vegetable compound is selected from wood shavings and wood pulp, the latter being most preferred.

Preferably the alkaline or alkaline earth metal used as cation in the salt with acidic pyrophosphate is sodium.

Acidic sodium pyrophosphate is a salt mainly used as leavening agent for cakes or additive for tooth paste. It is used in the composition according to the invention in a water solubilized form in an amount equal to ratio to water 50-70: 50-30 and an amount of 0.2-0.9% to the cellulose based vegetable product, preferably 0.5%.

When the vegetable product is wood pulp 0.5 g of acidic pyrophosphate are needed for 1 kg of wood pulp. Further additives such as anti-mould, deodorant, flavouring agents may also be added to the composition of the invention.

When the composition of the invention contains wood pulp as cellulose product ethanol is preferably added as anti-mould agent, being preferably added in an amount of 1% for 1 kg of wood pulp.

Without being bound by any theory it is assumed that the excellent properties of the composition according to the invention are due to interaction between acidic sodium pyrophosphate and the urine components such as ammonia, thus

abating the unpleasant odour and uric acid. In this case the reaction is slightly exothermic and this avoids transudation phenomena that are the reason of slush formation.

The vegetable litter produced with the composition according to the invention is a granular product having a density of 180-250 g/l, in which grain size is in the range of 2 to 10 mm. Such a broad grain range is provided to obtain a balance between ability of mixing with liquid and solid dung. Indeed, the fine particles stay by gravity on the bottom of the tray absorbing the greatest percentage of liquids. Moreover, when the cat digs in the litter to cover his dung, the dung comes into contact with the finer particles so as to eliminate odours.

The litter granule has a generally flattened shape and has an absorbing capacity of 600-700%, preferably 648%, is very light, inert and odourless. As the granule consists of a cellulose based composition, it can be easily disposed because it can be discharged and disposed through the home toilet like toilet paper.

Since the granules of the invention are very absorbent, they keep their solidity and grain size. This feature together with lack of transudation, gives to the litter according to the invention a longer useful life in comparison with the known litter products.

The granular product according to the invention generally has a white colour. When the vegetable product used is wood pulp, its properties can be exploited to check the condition of the granular product. As a matter of fact dry wood pulp is white and turns more and more pink when being hydrated. Therefore, when the product has a marked pink colour, the useful life of the granular product is over.

An embodiment of the production cycle of the composition according to the invention as well as of the granular finished product containing said composition are now given as an illustrative example only.

The raw wood pulp coming from the paper mill is placed under a shed and then is taken by a loading shovel to be discharged in a batching device from which it is sent by a conveyor belt to a sod breaker to be crushed. A conveyor belt then conveys the wood pulp to a first vibrating screen preventing to deliver dust with size under 2 mm to the drier, this dust being discarded because of its size.

A vertical drier with forced circulation (fluidised bed) fed with liquid propane gas or methane gas is being used.

At the drier outlet wood pulp undergoes a proper screening and the obtained granular product having a grain size of 2 to 10 mm is directly sent to a suitable silo.

From the silo the granular product is sent by conveyor belt to a spraying booth for the addition of a mixture of water and pyrophosphate in a percentage of 50% and ethanol in the minimum quantity of 1% as anti-mould agent.

From the spraying booth still with a conveyor belt the finished granular product is delivered to a sacking machine provided with suction dust exhaust.

It is important to note that the discarded wood pulp will be compacted again and converted into granules with a proper compacting screw so as to put it again in the production cycle. In this way waste is avoided unlike it occurs for the traditional mineral litter. Therefore, the litter according to the invention has the further advantage to allow recycling during the production cycle.

The present invention was described with reference to some illustrative embodiments, but modifications could be made to the excipients used however without falling out from the scope of protection as indicated in the appended claims.

CLAIMS

1. A granular composition for cat litter comprising a cellulose based vegetable product and a salt of acidic pyrophosphate with an alkaline or alkaline earth metal.

5 2. The composition according to claim 1 wherein the cellulose based vegetable product is selected from the group comprising wood pulp, wood shavings, corn cob, paper and cardboard.

10 3. The composition according to claim 2 wherein the cellulose based vegetable product is wood shavings or wood pulp.

4. The composition according to claim 3 wherein the cellulose based vegetable product is wood pulp.

15 5. The composition according to any of the preceding claims wherein the cellulose based product originates from a birch and/or poplar tree.

6. The composition according to any of the preceding claims wherein the alkaline or alkaline earth metal is sodium.

20 7. The composition according to any of the preceding claims wherein the amount of sodium acidic pyrophosphate is of 0.2-0.9% relative to the cellulose based vegetable product, preferably 0.5%.

8. The composition according to claim 7 wherein sodium pyrophosphate is in an amount of 0.5 g to 1 kg of wood pulp.

25 9. The composition according to any of claims 1 to 7 wherein the composition of granules for wood pulp comprises additives selected from the group comprising anti-mould, deodorant, flavouring agents.

30 10. The composition according to claims 4 and 9 wherein the anti-mould agent is ethanol.

11. The composition according to claim 10 wherein ethanol is added in an amount of 1% to 1 kg of wood pulp.

12. A granular product comprising the composition according to any of claims 1 to 11.

13. The granular product according to claim 12 having a grain size in the range of 2 to 10 mm.

14. The granular product according to claims 12 or 13 having an absorbing capacity of 648%.

15. Use of the granular product according to any of claims 12-14 for cat litter.