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- (54) Title:** SYSTEM AND METHOD FOR TREATING INDUSTRIAL PACKAGING MATERIAL

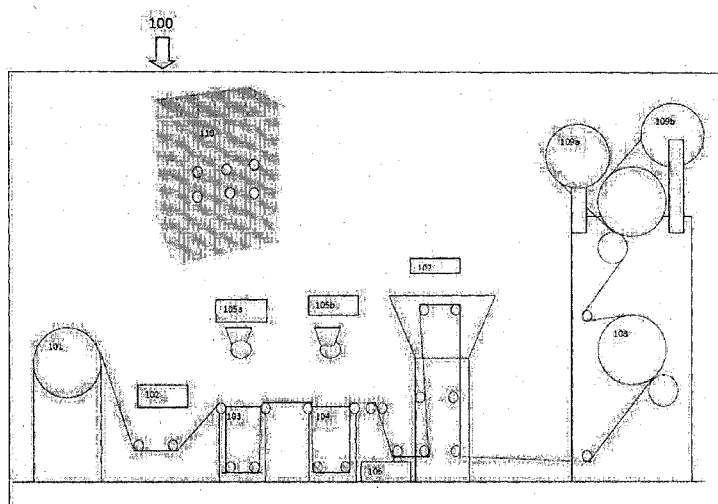


Fig. 1

- (57) Abstract:** A system for treating industrial packaging material comprising aluminium and plastic is provided. Further, a method for separating aluminium and plastic from industrial packaging material by a chemical means is provided. The method includes the steps of treating the industrial packaging material in a chemical solution; placing in water; drying and passing the plastic and aluminum on a drum to retrieve plastic and aluminum on separate rolls. Furthermore, a process for separating aluminium and plastic from industrial packaging material by a chemical means is provided.



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**“SYSTEM AND METHOD FOR TREATING INDUSTRIAL PACKAGING
MATERIAL”**

FIELD OF INVENTION

[001] The invention generally relates to treating industrial packaging material, and more particularly to a system and method for separating plastic and aluminium from industrial packaging material.

BACKGROUND OF INVENTION

[002] Laminated packaging is widely used as a packaging material for a range of products and is becoming an increasingly popular option for lightweight product packaging. Laminated packaging usually refers to packaging using plastic and/or aluminum. It is used in packaging a wide range of consumer products including food, drinks, toothpaste, bags, pouches and cosmetic products.

[003] Separation or recovery of aluminum from such laminated packaging is very important. It is seen that a lot of energy is spent on recovery of secondary aluminium from the packaging materials, than it is otherwise consumed when producing primary aluminium from bauxite. Typically, the processes adopted to separate aluminum from packaging material are microwave induced pyrolysis, incineration, shredding, pulverization etc. Apart from energy consumption, conventional processes results in toxic emissions which could be detrimental to the environment.

[004] Therefore, it is important to develop recycling systems to recover aluminum in a simpler, economical and eco-friendly manner.

OBJECT OF INVENTION

[005] The principal object of this invention is to provide a system for separating aluminum and plastic from industrial packaging material.

[006] Another object of the invention is to provide a method for separating aluminum and plastic from industrial packaging material.

[007] Yet another object of the invention is to provide a process for separating aluminum and plastic from industrial packaging material.

[008] These and other objects of the embodiments herein will be better appreciated and understood when considered in conjunction with the following description and the accompanying drawings. It should be understood, however, that the following descriptions, while indicating preferred embodiments and numerous specific details thereof, are given by way of illustration and not of limitation. Many changes and modifications may be made within the scope of the embodiments herein without departing from the spirit thereof, and the embodiments herein include all such modifications.

SUMMARY

[009] Accordingly, the invention provides a system for treating industrial packaging material, wherein the system comprises at least a chemical tank for treating at least industrial packaging material to separate aluminium and plastic, a dehydration unit for removal of at least one of excess water and moisture from industrial packaging material, and a plurality of rolls for retrieving aluminium and plastic from industrial packaging material.

[0010] Accordingly, the invention provides a method for treating industrial packaging material, wherein the method comprises treating industrial packaging material in at least a chemical tank for at least separating aluminium and plastic; dehydrating industrial packaging material using a dehydration unit; and retrieving aluminium and plastic using a plurality of rolls.

[0011] Accordingly, the invention provides a process, wherein the process comprises treating industrial packaging material in a chemical solution for at least separating aluminium and plastic; dehydrating industrial packaging material for removal of at least one of excess water and moisture; and retrieving at least aluminium and plastic from industrial packaging material.

[0012] These and other aspects of the embodiments herein will be better appreciated and understood when considered in conjunction with the following description and the accompanying drawings. It should be understood, however, that the following descriptions, while indicating preferred embodiments and numerous specific details thereof, are given by way of illustration and not of limitation. Many changes and modifications may be made within the scope of the embodiments herein without departing from the spirit thereof, and the embodiments herein include all such modifications.

BRIEF DESCRIPTION OF FIGURES

[0013] This invention is illustrated in the accompanying drawings, throughout which like reference numbers indicate corresponding parts in the various figures. The embodiments herein will be better understood from the following description with reference to the drawings, in which:

[0014] FIG. 1 depicts a system for separating aluminium and plastic from industrial packaging material, according to an embodiment as disclosed herein.

DETAILED DESCRIPTION OF INVENTION

[0015] The embodiments herein and the various features and advantageous details thereof are explained more fully with reference to the non-limiting embodiments that are illustrated in the accompanying drawings and detailed in the following description.

Descriptions of well-known components and processing techniques are omitted so as to not

~~obscure the description of the invention and to focus on the novel aspects of the invention.~~
packaging material, according to an embodiment as disclosed herein.

[0030] Further, the separated plastic and aluminium is dipped in the water tank 104. In an embodiment, the water tank 104 comprised 50-80 litres of plain water. In a preferred embodiment, the water tank 104 comprises 70 litres of plain water.

[0031] Further, the separated plastic and the aluminum are dried to retrieve plastic and aluminum separately.

[0032] In an embodiment, the separated plastic and the aluminum are dried using the pinch roll and the drier, passed through the drum to finally retrieve plastic and aluminum separately on separate rolls.

[0033] The embodiments herein, provide a process for treating industrial packaging material and more particularly to a process for separating aluminum and plastic from industrial packaging material.

[0034] In one embodiment, the raw material is unwound which is in the form of a roll. The unwound raw material is remolded to a predetermined shape. The remolded raw material is treated in a chemical solution comprising a mixture of sulphuric acid and salt. In one embodiment, salt includes sodium chloride.

[0035] In an embodiment, the chemical solution is 50-80 litres. The chemical solution is a mixture in the range of 35kg to 45kg of sulphuric acid and 800g to 1200g of sodium chloride. In a preferred embodiment, the chemical solution is 70 litres. The chemical solution is a mixture of 40 kg of sulphuric acid and 900g of sodium chloride.

[0036] Plastic and aluminum are separated in the chemical solution. The separated plastic and aluminum is further placed in water to remove any excess chemical solution retained in the separated aluminium and plastic. In an embodiment, water is 50 to 80 litres of plain water. In a preferred embodiment, water is 70 litres of plain water. Further, the separated aluminum and plastic are dried to remove excess water and aluminum and plastic are retrieved separately.

CLAIMS

We claim,

1. A system 100 for treating industrial packaging material, said system 100 comprising:
 - at least a chemical tank 103 comprising chemical solution for treating at least industrial packaging material to separate aluminium and plastic;
 - a dehydration unit 106 and 107 for removal of at least one of excess water and moisture from said industrial packaging material; and
 - a plurality of rolls 109a and 109b for retrieving said plastic and said aluminum from said industrial packaging material.
2. The system 100 as claimed in claim 1, wherein said chemical tank is configured to accommodate at least 50 liters and up to 80 liters of chemical solution, said chemical solution comprising sulphuric acid and sodium chloride, further wherein said sulphuric acid is in the range of 35kg to 45kg and said sodium chloride is in the range of 800g to 1200g.
3. The system 100 as claimed in claim 1, wherein said dehydration unit includes at least one of an absorbing unit 106 and a drying unit 107.
4. The system 100 as claimed in claim 1, wherein said system further comprises:
 - at least an unwind roll 101 for unwinding said industrial packaging material;

at least a web guide 102 for remolding said industrial packaging material to a predetermined shape;

at least a water tank 104 comprising plain water for at least removal of excess chemical solution from said treated industrial packaging material;

a plurality of motors 105a and 105b for controlling said industrial packaging material, wherein said industrial packaging material is being treated in said chemical tank 103 and said water tank 104; and

at least a drum 108 for splitting said treated industrial packaging material into at least said aluminium and said plastic.

5. The system 100 as claimed in claim 4, wherein said water tank 104 is configured to accommodate at least 50 liters and up to 80 liters of plain water.

6. A method for treating industrial packaging material, said method comprising:

treating said industrial packaging material in at least a chemical tank 103 for at least separating aluminium and plastic;

dehydrating said industrial packaging material using a dehydration unit 106 and 107; and

retrieving said aluminium and said plastic using a plurality of rolls 109a and 109b.

7. The method as claimed in claim 6, wherein said chemical tank 103 is configured to accommodate at least 50 liters and up to 80 liters of chemical solution, said chemical solution comprising sulphuric acid and sodium chloride, further wherein said sulphuric acid is in the range of 35kg to 45kg and said sodium chloride is in the range of 800g to 1200g.

8. The method as claimed in claim 6, wherein said dehydration unit is configured to comprise at least one of an absorbing unit 106 and a drying unit 107.

9. The method as claimed in claim 6, said method further comprising:

unwinding the industrial packaging material on at least an unwind roll 101;

remolding the industrial packaging material to a predetermined shape using at least a web guide 102;

placing said treated industrial packaging material in at least a water tank 104 for removal of at least excess chemical solution;

controlling said industrial packaging material in at least one of said chemical tank 103 and said water tank 104 using a plurality of motors 105a and 105b;
and

passing said dehydrated material through at least a drum 108 for retrieving said aluminium and said plastic.

10. The method as claimed in claim 9, wherein said water tank 104 is configured to comprise at least 50 liters and up to 80 liters of plain water.

11. A process for treating of industrial packaging material, said process comprising:

treating said industrial packaging material in a chemical solution for at least separating aluminium and plastic;

dehydrating said industrial packaging material for removal of at least one of excess water and moisture; and

retrieving at least said aluminium and said plastic from said industrial packaging material.

12. The process as claimed in claim 11, said process further comprising:

unwinding said industrial packaging material;

remolding said industrial packaging material to a predetermined shape;

placing said treated industrial packaging material in plain water for removal of at least excess chemical solution; and

splitting said treated industrial packaging material into at least said aluminium and said plastic.

13. The process as claimed in claim 11, wherein said chemical solution is in the range of 50 to 80 litres, said chemical solution comprising sulphuric acid and sodium chloride, further wherein said sulphuric acid is in the range of 35kg to 45kg and said sodium chloride is in the range of 800g to 1200g.

14. The process as claimed in claim 12, wherein said plain water comprises at least 50 liters and up to 80 liters of plain water.

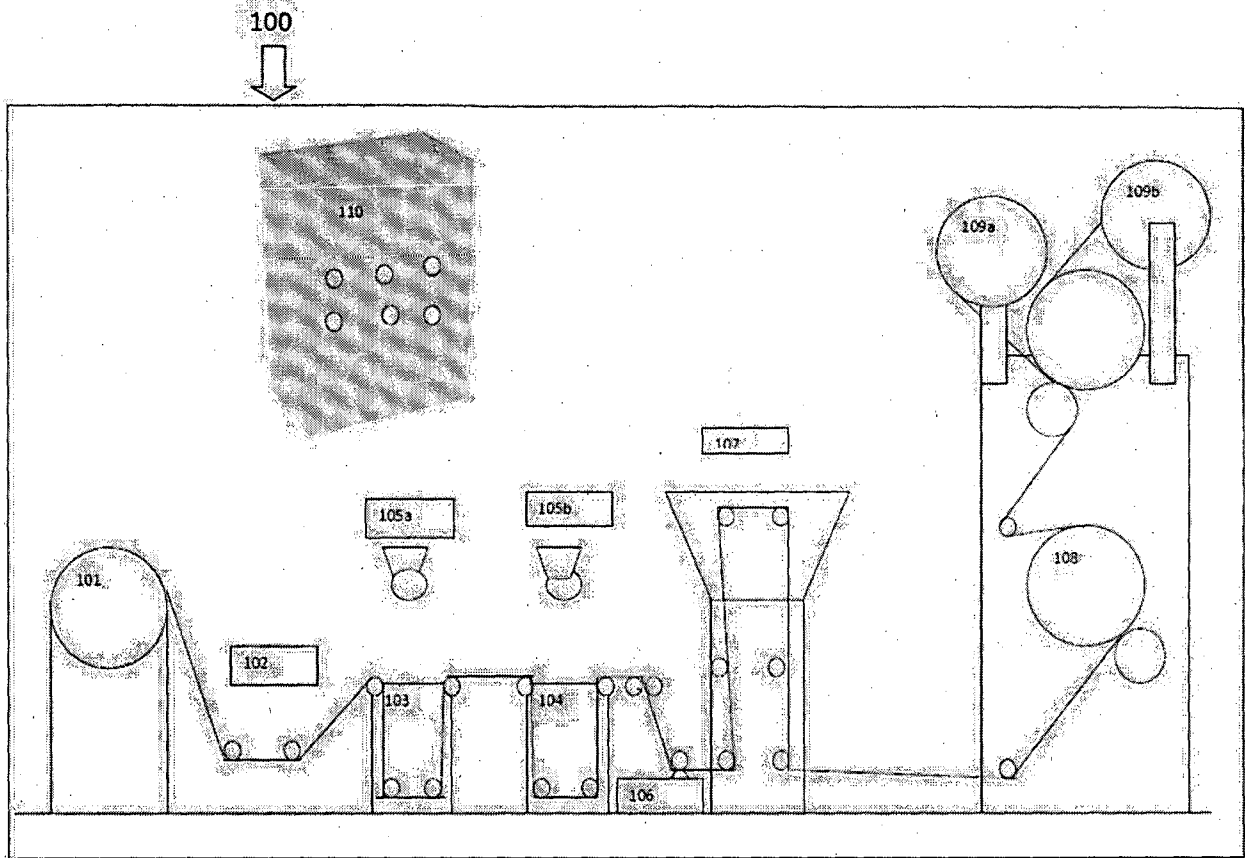


Fig. 1