

WE CLAIM:

1. A polymer composition for coating expanded polystyrene (EPS), comprising:

a mixture of at least one of polyurea, polyurethane, silicon elastomer,
and combination thereof in a predefined ratio,

5 wherein the mixture comprises one of the polyurea and the
polyurethane in the predefined ratio of 60:40 to 80:20, and the polyurea,
the polyurethane, and the silicon elastomer in the predefined ratio of
60:37:03 to 78:19:03.
2. The polymer composition as claimed in claim 1, wherein the mixture
10 comprises the polyurea and the polyurethane in the predefined ratio of 65:35.
3. The polymer composition as claimed in claim 1, wherein the mixture
comprises the polyurea, the polyurethane, and the silicon elastomer in the
predefined ratio of 65:32:03.
4. The polymer composition as claimed in claim 1, wherein the mixture of the
15 polyurea and the polyurethane is configured to impart flexural strength and
elongation strength to the EPS.
5. The polymer composition as claimed in claim 1, wherein the mixture of the
polyurea, the polyurethane, and the silicon elastomer is configured to impart
anti-static property along with flexural strength and elongation strength to the
20 EPS.
6. A process for coating a polymer composition onto expanded polystyrene
(EPS), comprising:

heating a mixture of at least one of polyurea, polyurethane, silicon
elastomer, and combination thereof in a predefined ratio at 70°C to 85°C to
25 obtain the polymer composition in a molten state,

wherein the mixture comprises one of the polyurea and the polyurethane in the predefined ratio of 60:40 to 80:20, and the polyurea, the polyurethane, and the silicon elastomer in the predefined ratio of 60:37:03 to 78:19:03;

- 5 coating the EPS with the molten polymer composition to form a layer of predefined thickness on surface of the EPS,

 wherein the coating of molten polymer composition being performed using matrix coating process; and

 drying the coating on the surface of the EPS at a room temperature.

- 10 7. The process as claimed in claim 6, wherein the mixture comprises the polyurea and the polyurethane in the predefined ratio of 65:35.
8. The process as claimed in claim 6, wherein the mixture comprises the polyurea, the polyurethane, and the silicon elastomer in the predefined ratio of 65:32:03.
- 15 9. The process as claimed in claim 6, wherein the mixture of the polyurea and the polyurethane is configured to impart flexural strength and elongation strength to the EPS.
10. The process as claimed in claim 6, wherein the layer of predefined thickness formed mixture of the polyurea, the polyurethane, and the silicon elastomer is configured to impart anti-static property along with flexural strength and elongation strength to the EPS.
- 20 11. The process as claimed in claim 6, wherein the spraying of the molten polymer composition on the surface of the EPS is carried using a gun controlled by one of a manual spray method and robotic arm.
- 25 12. The process as claimed in claim 6 wherein the predefined thickness of the layer of the polymer composition is uniform over the surface of the EPS.

13. The process as claimed in claim 6, wherein the predefined thickness of the layer of the polymer composition is variable over the surface of the EPS.
14. The process as claimed in claim 6, wherein the predefined thickness of the layer of the polymer composition coated on the surface of the EPS ranges from 0.5 mm to 1 mm.
15. An expanded polystyrene (EPS), comprising:
- a layer of predefined thickness of a polymer composition coated on surface of the EPS, wherein the polymer composition comprises:
- a mixture of at least one of polyurea, polyurethane, silicon elastomer, and combination thereof in a predefined ratio,
- wherein the mixture comprises one of the polyurea and the polyurethane in the predefined ratio of 60:40 to 80:20, and the polyurea, the polyurethane, and the silicon elastomer in the predefined ratio of 60:37:03 to 78:19:03.
16. The process as claimed in claim 15, wherein the mixture comprises the polyurea and the polyurethane in the predefined ratio of 65:35.
17. The process as claimed in claim 15, wherein the mixture comprises the polyurea, the polyurethane, and the silicon elastomer in the predefined ratio of 65:32:03.
18. The process as claimed in claim 15, wherein the layer of predefined thickness formed by the mixture of the polyurea and the polyurethane is configured to impart flexural strength and elongation strength to the EPS.
19. The process as claimed in claim 15, wherein the layer of predefined thickness formed by the mixture of the polyurea, the polyurethane, and the silicon elastomer is configured to impart anti-static property along with flexural strength and elongation strength to the EPS.

20. The process as claimed in claim 15, wherein the predefined thickness of the layer of the polymer composition coated on the surface of the EPS ranges from 0.5 mm to 1 mm.