

We claim:

1. A membrane for waterproofing a substrate, comprising:

a laminate construction wherein the laminate comprises a carrier sheet, a pressure-sensitive adhesive (PSA) layer, a particulate layer partially embedded into the PSA layer, and a protective top-coating layer attached to the particulate layer,
5 the laminate having parallel side edges whereby the laminate construction can be rolled into a roll form along the side edges for shipment;

the carrier sheet having an average thickness of 0.20 to 2.0 mm;

the PSA layer attached to the carrier sheet and having an average thickness
10 of 0.1 to 1.0 mm;

the particulate layer partially embedded into the PSA layer and comprising aluminum oxide trihydrate (ATH) particles having an average mean diameter of 50 to 200 microns, the particulate layer having a coating weight in the range of 10 to 300 grams per square meter; and

15 the protective top-coating layer covering the partially embedded ATH particles and portion of unembedded PSA layer, the protective top-coating layer being substantially devoid of nano-silica (i.e., no more than 0 – 0.25% by weight), the protective top-coating layer comprising a polymer chosen from acrylic, polyvinylacetate, acrylate/styrene copolymer, acrylate/vinyl acetate copolymer, chloroprene, butyl rubber, styrene-butadiene copolymer, SEBS, or mixture thereof;
20 and the protective top-coating layer further comprising a filler in the amount of 20% to 80% by weight and having an average thickness of 0.01 to 0.20 mm.

2. The membrane of claim 1 wherein the membrane does not have a release liner or paper except along the side edges of the membrane, which are
25 devoid of pressure sensitive adhesive, particulates, and top coating.

3. The membrane of claim 1 wherein the carrier sheet comprises a polymer film, woven fabric, non-woven fabric, or combination thereof.

4. The membrane of claim 3 wherein the carrier sheet comprises a fabric sandwiched between two polymer films.
5. The membrane of claim 1 wherein the carrier sheet has an average thickness of 0.2 to 2.0 mm.
- 5 6. The membrane of claim 1 wherein the carrier sheet comprises polypropylene, polyethylene, ethylene-propylene copolymers, ethylene-olefin copolymers, ethylene-vinyl acetate copolymers, polyvinyl acetate, polyethylene terephthalate (PET), polyvinyl chloride (PVC), thermoplastic polyolefin (TPO), or a mixture of any of the foregoing polymers or co-polymers.
- 10 7. The membrane of claim 1 wherein the carrier sheet is a multilayer laminate having at least two layers, each of the at least two layers comprising a different polymer or polymer combination.
8. The membrane of claim 1 wherein the pressure sensitive adhesive comprises rubber modified bituminous adhesive or synthetic polymer.
- 15 9. The membrane of claim 8 wherein the pressure sensitive adhesive comprises butyl rubber, polyisobutylene, styrene-isoprene-styrene (SIS), styrene-ethylene-butylene-styrene (SEBS), styrene-butadiene-styrene (SBS), styrene-butadiene rubber (SBR), amorphous polyolefin (APO), or a mixture of any of the foregoing adhesives.
- 20 10. The membrane of claim 1 wherein the ATH particle layer has a coating weight of 100 to 200 gram per square meter.
11. The membrane of claim 10 wherein the ATH particles have an average diameter of 50 to 200 microns.
12. The membrane of claim 1 wherein the protective top-coating layer
25 comprises a film-forming polymer latex chosen from acrylate, polyvinyl acetate, acrylate/styrene copolymers, acrylate/vinyl acetate copolymers, and mixtures thereof.

13. The membrane of claim 1 wherein the protective top-coating layer has an average coating weight of 10 to 200 gram per square meter and an average thickness of 0.01 to 0.20 mm.

14. The membrane of claim 1 wherein the protective top-coating layer
5 further comprises at least one filler material in the amount of 20%-80% by weight.

15. The membrane of claim 14 wherein the protective top-coating layer comprises at least one filler material chosen from calcium carbonate, magnesium carbonate, titanium dioxide, dolomite, wollastonite, barium sulfate, crystalline or amorphous silica, bentonites, talc, or mixture thereof.

10 16. A method for waterproofing a substrate, comprising: attaching onto a building or civil engineering surface the membrane of claim 1.

17. A method for waterproofing a substrate, comprising:

attaching onto a building or civil engineering surface a first membrane in accordance with claim 2, the first membrane comprising release liner or paper only
15 along the side edges of the membrane; and

attaching to a surface adjacent to the first membrane a second membrane also comprising release liner or paper only along the side edges of the second membrane; and

sealing together the first and second membrane at overlapping portions.

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