## Patent Analysis: Materials, Processes & Applications

<table>
<thead>
<tr>
<th>Patent Number/Assignee</th>
<th>Materials</th>
<th>Process</th>
<th>Application</th>
</tr>
</thead>
</table>
| US6485735 Phelps Dodge High Performance Conductors of SC & GA, Inc. | The invention is for a thermoset structure with multiple thermoset layers bonded together to function as a single layer. | To obtain the thermoset structure:  
- the liquid resin is mixed with any of a variety of agents (e.g., Antimicrobial) in a powdered, particulate form until well dispersed throughout the resin – no chemical bonding between the powdered particulate and the liquid resin occurs  
- a first layer of the liquid polymer thermoset resin, with or without additives, is poured into the form of a flat sheet  
- the first layer is heat cured  
- the process is repeated for successive layers – bonding between these layers is achieved through adhesion, cross-linking and hydrogen bonding as one layer is cured on top of another  
- Additionally, the process can be used to coat a wire. | The invention is said to be used in the medical as well as other industries. Such as packaging, insulating, textiles, and personal care. |

10 – thermoset polymer matrix sheet  
22 – the first layer is of a thermoset polymer resin, preferably polyimide, and a friction reducing agent such as PTFE. The PTFE powdered particles are suspended in the resin with some of the particles at the exposed surface 27 act as a lubricant for the first layer  
24 – the second layer is a thermoset polymer resin, preferably polyimide, without any additives  
26 – the third layer thermoset polymer resin is preferably a polyimide and contains an antimicrobial powdered particles suspended in the resin with some of them located at 29 the surface of the third layer  

It is noted that each of the layers can be the same resin or different resins, provided they will cross-link or bond to each other via hydrogen and/or adhesion bonding.
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| **US6103358 Chemische Fabrik Stockhausen** | The invention is for a multilayered product comprised of foamed plastic and latex layers and at least one superabsorbent polymer layer. **Foam** – the plastic or latex foam layer is composed of commercial plastic materials and/or latex dispersions for rigid, semirigid, flexible and nonrigid foams, preferably copolymers formed of at least two monomers of (meth)acrylates, styrene, butadiene or vinyl acetate. **Superabsorbent** – fillers can be chalks, betonites, silica gels and silicic acid, activated carbons, pigments and/or natural and synthetic fibrous materials | The invention, which can be multiple layers, is formed by:
• the plastic or latex foam is spread out over the surface and may be completely or partially vulcanized under suitable known conditions, such as by single or multiple heating, for example in the IR-field or by treatment in the UV-field, after each application of the polymer
• the superabsorbent, particulate polymer is applied on the spread-out foam, at a preferred ratio of 1:5 to 10:1, using at least one stencil, perforated disk and/or sieve and optionally fixing by a heat treatment
• Finally, a vulcanization is effected to completely cross-link the plastic or latex layers – this may be connected with additionally drying the body
• Optionally, the body may be processed with a calendar and/or embossing roll. | Although primarily intended for use in hygenics as an absorbent for bodily fluids such as blood, sweat, urine and other liquid excretions, the invention can also be used as a component in a wound dressing and further in packaging and insulating materials, in textiles for clothing and cleaning materials and in the cultivation of plants. |