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(54) **MULTILAYER THERMOSET POLYMER MATRIX AND STRUCTURES MADE THEREFROM**

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(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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**Related U.S. Application Data**

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(58) **Field of Search** ..... 424/422, 423, 424/443, 484; 623/1.1, 1.11, 1.44, 1.46

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(57) **ABSTRACT**

A composite thermoset polymer matrix structure having a plurality of homogeneously bonded thermoset polymer layers and a method of forming the same is disclosed. Each of the layers is formed from either a pure thermoset polymer resin or a composition of any of a variety of thermoset polymer resins and any of a variety of agents or combination of agents heterogeneously dispersed and suspended within the thermoset polymer resin. In this manner, each layer exhibits a distinct desirable functional property or characteristic depending upon an intended application. The agents are selected from a group of additives including but not limited to anti-microbial agents, anti-fungal agents, antiviral agents, anti-thrombotic agents, friction reducing agents; radiopaque agents, and electrically conductive or resistive agents. The composite thermoset polymer matrix structure may be formed into any size or any shape, object, or structure.

**38 Claims, 4 Drawing Sheets**

