



(12) **United States Patent**
Gordon et al.

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- (54) **PREPARATION OF ENZYMATICALLY ACTIVE SPONGES OR FOAMS FOR DETOXIFICATION OF HAZARDOUS COMPOUNDS**
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C12S 9/00; C12S 13/00

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435/174, 178, 180, 182

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(57) **ABSTRACT**

An enzymatically active reusable sponge or foam, capable of regeneration with oximes, made of a polymer such as polyurethane is prepared for detoxification of hazardous compounds such as organophosphorus and organosulfur compounds. The foam or sponge contains a plurality of enzymes including enzymes selected from acetylcholinesterase, butyrylcholinesterase, triesterase, pseudocholinesterase, organophosphate hydrolase, phosphotriesterase, paraoxonase and organophosphorus and organosulfur hydrolyzing enzymes. The sponge or foam may additionally contain activated carbon and an enzyme reactivation compound. A kit can be formed containing the sponge or foam and the compound for enzyme reactivation. The enzymatically active foam or sponge may be prepared using a two chamber device where enzymes and prepolymer are passed from separate chambers into a static mixing stator and are subjected to low shear mixing and extrusion to form by the sponge or foam.