

ABSTRACT

SLURRY-BASED COATING SYSTEM REPAIR

In some examples, a method including applying a wet bond coat slurry to a damaged area of a coating system on a metal substrate, wherein the bond coat slurry comprises a liquid binder, at least one of glass particles or glass-ceramic particles, and ceramic oxide particles; depositing a plurality of fibers onto the wet bond coat slurry at least one of during or after the wet bond coat slurry is applied to the damaged area, wherein the plurality of fibers includes at least one of metallic fibers or ceramic fibers; applying a ceramic composite slurry on the bond coat to form a ceramic composite layer, wherein, during the application of the ceramic composite slurry on the bond coat, the bond coat is wet or at least partially dried, wherein the wet or at least partially dried bond coat includes a plurality of partially exposed fibers, wherein, following the application of the ceramic composite slurry, a first portion of individual fibers of the plurality of fibers are embedded in the wet or at least partially dried bond coat and a second portion of the individual fibers of the plurality of fibers extend into the layer of the ceramic composite slurry; and heating the wet or at least partially dried bond coat and the ceramic composite layer to form a repaired portion of the coating system on the metal substrate, wherein heating the bond coat melts at least a portion of the at least one of the glass particles or the glass-ceramic particles to form a fully amorphous glass phase or a mixture of amorphous and crystalline glass phases which bond with the metal substrate.

FIG. 1