Claims

1. An intumescent coating composition comprising:

an epoxy resin binder,

an epoxy reactive diluent,

a curing agent, and

an acid catalyst,

wherein the curing agent is comprised of a mixture of polyamide, polyetheramine and an amine multifunctional monomer and wherein the acid catalyst is effective to form a phosphoric acid on thermal decomposition, and wherein the coating composition has a viscosity, when measured within 1 minute of initial mixing, of between 20,000 and 140,000 mPa/s at 20 °C and shear rate 1.5 s^{-1}.

2. An intumescent coating composition according to claim 1, wherein the epoxy resin binder comprises a Bisphenol diglycidyl ether epoxide resin.

3. An intumescent coating composition according to claims 1 or 2, wherein the epoxy reactive diluent comprises a diglycidyl ether of an aliphatic alcohol.

4. An intumescent coating composition according to claims 1 to 3, wherein the polyamide of the curing agent comprises a polyamidoimidazoline.

5. An intumescent coating composition according to any preceding claim, wherein the polyetheramine of the curing agent comprises a polyether backbone selected from polypropylene glycol and/or polyethylene glycol.

6. An intumescent coating composition according to any preceding claim, wherein the amine multifunctional monomer of the curing agent comprises a polyamine.

an acid catalyst,

wherein the curing agent is comprised of a mixture of polyamide, polyetheramine and an amine multifunctional monomer and wherein the acid catalyst is effective to form a phosphoric acid on thermal decomposition, and wherein the coating composition has a viscosity, when measured within 1 minute of initial mixing, of between 20,000 and 140,000 mPa/s at 20 °C and shear rate 1.5 s^{-1}.

14. A steel or concrete substrate coated on at least a portion thereof with an intumescent coating composition, the intumescent coating composition comprising:

an epoxy resin binder,

an epoxy reactive diluent,

a curing agent, and

an acid catalyst,

wherein the curing agent is comprised of a mixture of polyamide, polyetheramine and an amine multifunctional monomer and wherein the acid catalyst is effective to form a phosphoric acid on thermal decomposition, and wherein the coating composition has a viscosity, when measured within 1 minute of initial mixing, of between 20,000 and 140,000 mPa/s at 20 °C and shear rate 1.5 s^{-1}.

15. A method of increasing the passive fire protection of a substrate, comprising applying an intumescent coating composition thereto, the intumescent coating composition comprising:

an epoxy resin binder,

an epoxy reactive diluent,

a curing agent, and

an acid catalyst, wherein the curing agent is comprised of a mixture of polyamide, polyetheramine and an amine multifunctional monomer and wherein the acid catalyst is effective to form a phosphoric acid on thermal decomposition, and wherein the coating composition has a viscosity, when measured within 1 minute of initial mixing, of between 20,000 and 140,000 mPa/s at 20 °C and shear rate 1.5 s^{-1}.