Development of the Transparent Flame-retardant Glass Fiber-reinforced Plastics coated by a Claist®

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Background

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Transparency

Non-flammability

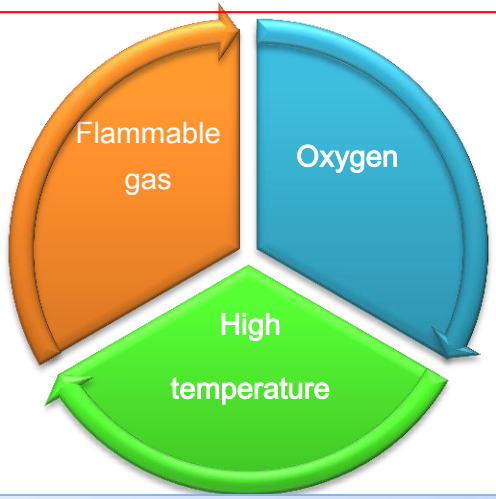
Lightweight

Safety

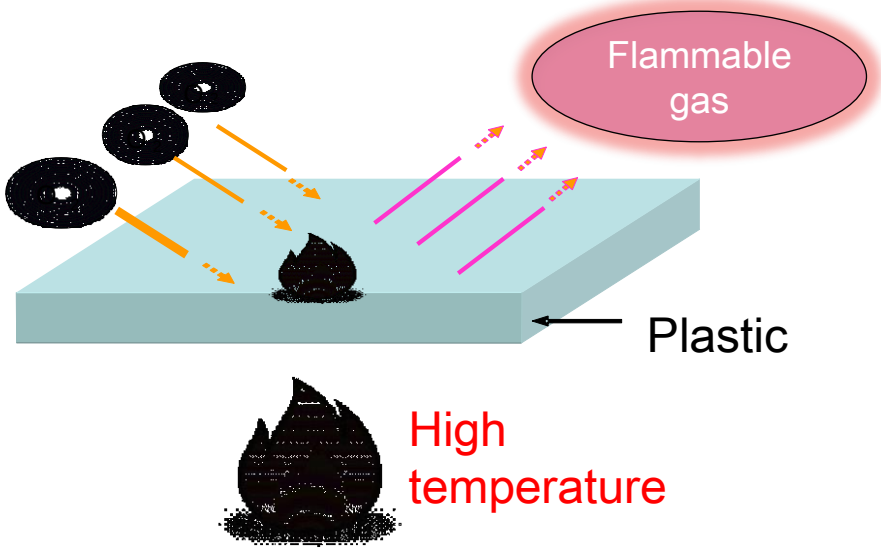
No materials satisfying four characteristics

Combustion test method for railroad carriages（ISO　5660－1：2002）

Three elements of combustion



Combustion mechanism for plastic materials



What is new constitution?

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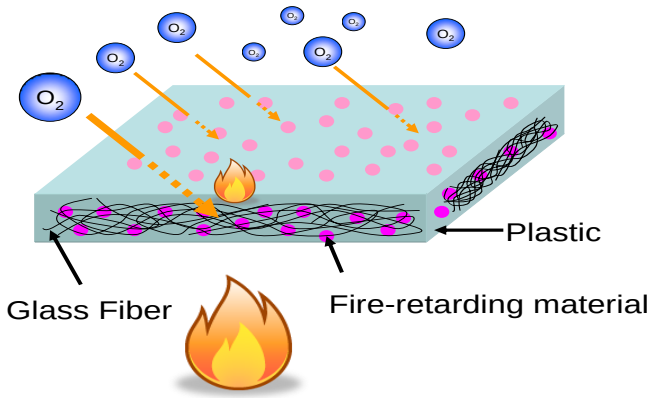
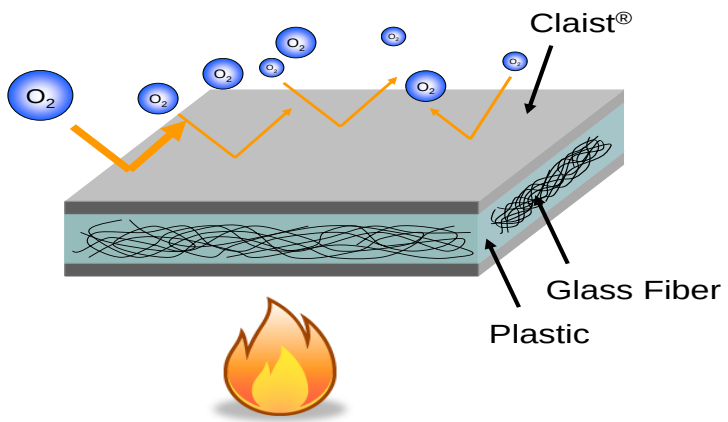


Conventional GFRP



New GFRP developed

Glass Fiber Reinforced Plastics (GFRP)

- ○Toghness
- ○Lightweight
- ○Optical diffusion

Claist®

- ○Heat-resistant
- ○Gas shutoff
- ○Incombustibility
- ○Transparent

Properties of Materials

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	Transparency	Incom-bustibility	Light-weight	Toughness	Optical diffusion
Claist® coating GFRP	○	○	◎	◎	◎
Transparent Claist®	◎	◎	◎	×	×
Transparent GFRP	○	×	◎	◎	◎
Transparent Glass	◎	◎	×	×	×
Transparent Plastic	◎	×	○	○	×

Discussion

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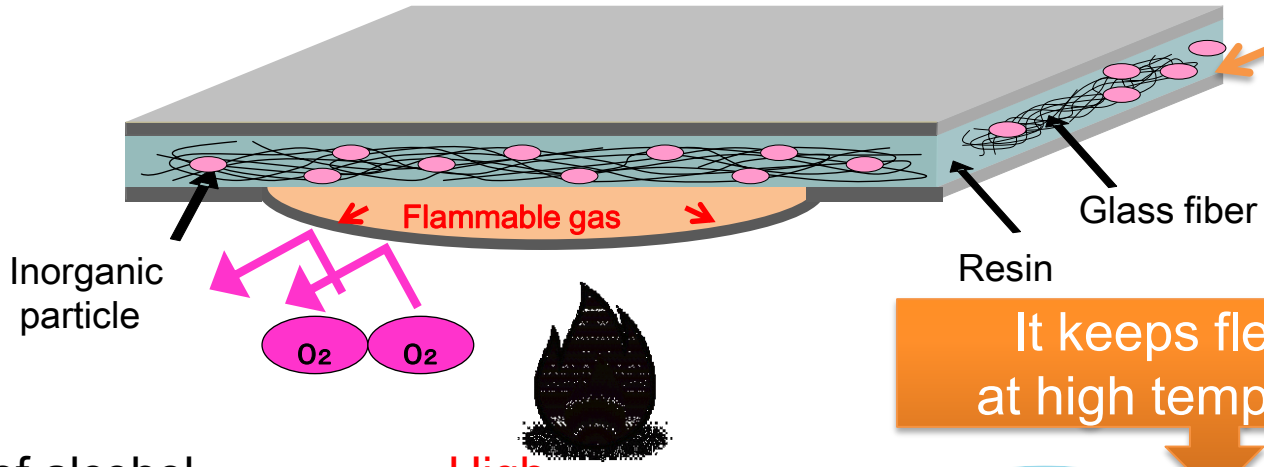
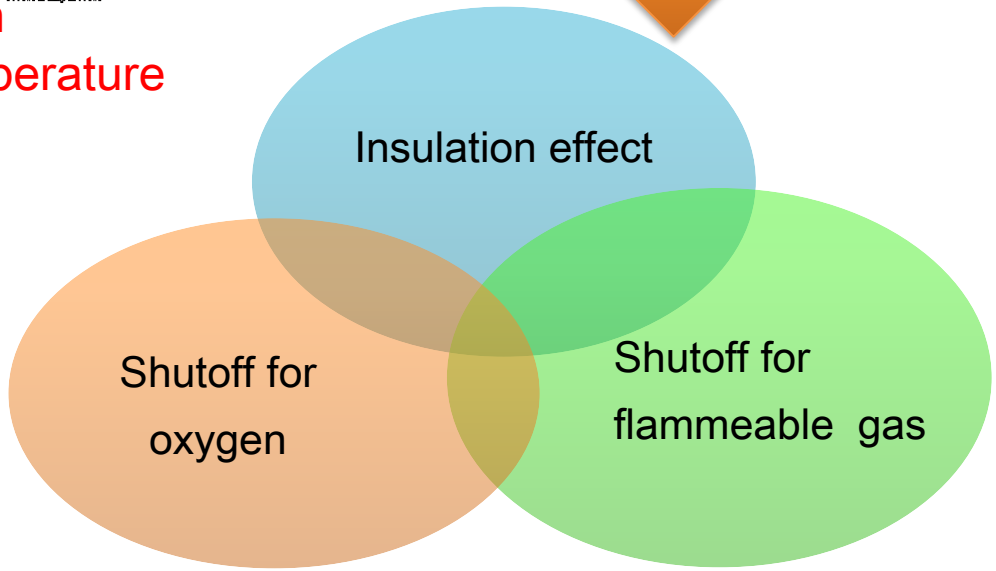


Clast ®

It keeps flexibility at high temperature.

Image of alcohol combustion examination

High temperature



Thank you very much