

Comparative tests of heat protection helmets

Duroplastic or thermoplastic with duroplastic properties?

Activities in hot zones are exposed to special dangers which demand suitable protection.

Three types of materials have established themselves for safety helmets:

- phenolic resin fabric
- glass fibre reinforced polyester
- glass fibre reinforced polycarbonate

Whilst the first two of the above mentioned materials are part of the duroplastic group, our model INAP-PCG, a safety helmet of glass fibre reinforced polycarbonate, is a thermoplastic helmet with duroplastic properties.

The INAP-PCG's advantages of this type of processing and its exceptional material properties in hot zone protection were proven in several comparative tests with safety helmets of phenolic resin fabric in leading German steel mills.

In these cases it was evident that the basic properties of the INAP-PCG for activities in hot zones are superior to those of duroplastic of both materials.

The following is an overview of the excellent test results of the INAP-PCG:

- clearly reduced danger of faulty helmets by mechanical production of the INAP-PCG
- no dripping off or residual burning of shell during singe testing
- self-extinguishing material properties
- excellent dimensional stability under heat as opposed to radiation
- no melting through shell when pouring over 1280° C hot liquid steel, weighing approximately 3.75 kg
- improved energy dissipation of the polycarbonate shell
- particularly low temperatures inside and on the helmet
- no penetration of the shell for fitting of harness
- outstanding abrasion resistance
- 10 years durability

Despite these obvious results in favour of the INAP-PCG, purchase of this helmet is more economical than a duroplastic helmet.

Conclusion: The INAP-PCG is exceptionally well suited to activities in hot zones and special demands.