Molybdenum glass melting electrodes.

Glass melting electrodes must withstand extremely high temperatures and aggressive glass melts. Molybdenum from Plansee is the right material for these challenging conditions.

- Melting point of 2,620 °C (4,748 °F)
- Outstanding creep resistance
- High dimensional stability
- Excellent corrosion resistance
- Good electrical and thermal conductivity
- Outstanding purity
Quality. Our unbreakable rule.

When it comes to quality, we like to be in complete control. We produce our molybdenum glass melting electrodes ourselves – from the metal powder right through to the finished product. As our input material, we use only the purest molybdenum oxide. In this way, we can be sure that our glass melting electrodes are free of any impurities. This prevents any discoloration or bubble formation. Thanks to a special forging process, the glass melting electrodes we manufacture possess a particularly smooth surface. In addition, our forming processes result in a particularly coarse-grained, creep-resistant material structure coupled with optimum straightness. The benefit to you: Your glass melting electrodes do not become deformed, are less prone to wear and last for longer.

**MoZrO\textsubscript{2}: Outstanding corrosion resistance.**

Plansee supplies glass melting electrodes made from MoZrO\textsubscript{2} for glass production involving particularly aggressive glass melts. Small quantities of zirconium oxide (ZrO\textsubscript{2}) added to molybdenum enhance the properties of the pure material. MoZrO\textsubscript{2} offers a particularly high level of corrosion resistance to glass melts as well as better creep resistance than pure molybdenum. Major areas of application for MoZrO\textsubscript{2} include glass production for the solar industry and container glass industry. The solar glass production process makes use of aggressive refining agents such as antimony oxide. These harm the grain structure of pure molybdenum and cause the rapid abrasion and breakage of the electrodes. MoZrO\textsubscript{2} is able to withstand this aggressive environment. Even in brown and green container glass, MoZrO\textsubscript{2} is able to considerably reduce electrode corrosion.
Our guarantee against oxidation: Sibor®.

Let us be completely honest. Do you know the Achilles heel of our molybdenum? Oxygen. Because the material oxidizes at temperatures over 400 °C (752 °F). In the past, did you solve the problem of glass melting electrodes by installing them in the tank already full of glass melt – a time-consuming and hazardous operation? If that is the case, try Sibor® - our anti-oxidation solution for molybdenum - and mount your electrodes simply and easily before heating the glass tank. Sibor® protects molybdenum against oxidation at temperatures up to 1700 °C (3092 °F). The very hard, dense coating creates a diffusion barrier along the base material and forms an SiO₂ seal against the air.

Sibor®-coated molybdenum glass melting electrodes can be heated rapidly without causing the coating to separate. The oxidation protection is guaranteed to remain effective for the following periods:

- 5000 h at 1250 °C / 2282 °F
- 500 h at 1450 °C / 2642 °F
- 50 h at 1600 °C / 2912 °F
Stock product or tailor made.

Only flawless, chemically cleansed electrodes leave our factory. And we can even supply standard sizes from stock. However, special requirements are also not a problem. Special dimensions, mechanically processed, coated, with special threads or cooling holes? Tell us your requirements.

Sure and certain.

Ever since 1921, our customers have been able to rely on Plansee as an independent private company. Like us, they place great importance on reliability and continuity – especially when it comes to raw materials procurement. With Global Tungsten & Powders (GTP) and a holding in Molibdenos y Metales (Molymet), the Plansee-Group covers all the stages involved in the processing of tungsten and molybdenum – from powder manufacture through the subsequent powder metallurgy processes and on to the production of semifinished products and customer-specific components.

What else can we do for you?

Get to know the other champions for your glass melting tank: Molybdenum tank reinforcements for protection against corrosion, stirrers and gobbers, our products for quartz glass production and spinning nozzles for the manufacture of glass and ceramic wool and glass fibers.

Why wait? Our ribbons, sheets, rods and wires manufactured from refractory metals are available for order online right now. Take a look: www.plansee.com/shop/