

Heraeus

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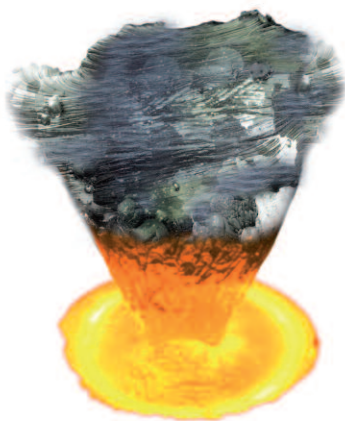


Competence in Materials for the Lighting Industry

Special Metals Technology

W. C. Heraeus is a world leader in industrial precious metals and special metals, and stands out as a supplier of excellence in the international industry precious metal trade. The Business Unit Special Metals Technology is specialized in this context in refractory and precious metals. Complex technical applications demand high requirements – with regards to their temperature and corrosion resistance – on materials and processes.

Our specialized team can look back on many years of experience and a high degree of expertise, in particular in the field of the research and development of customized solutions for the lamp and lighting industry. Our expertise makes us an ideal partner when your company is seeking to optimize its products to meet the challenges facing today's market and to achieve your goals in terms of higher energy efficiency, improved color rendition or more compact design.



Melting & Alloying

Bending & Coiling

Welding

**Co
Compe**

Coating

Stamping

Composites



Bright Partner in Research and Development

Drawing

**Cut to
length**

Annealing

**Pre
ferences**

**Surface
Treatment**

Forming

Rolling

R&D is a key element in our business philosophy. Our business focuses on developing new approaches to working with raw materials in manufacturing, on optimizing processing parameters and experimenting with innovative manufacturing methods. In doing so, we place high value in close collaboration and frequent communication with our customers.

Only by being aware of the needs and wishes of our customers are we able to develop a product that is ideally suited to keeping our customers be several steps ahead of the competition. Our approach includes working hand-in-hand with universities and reputable research institutes. We would be pleased to share with you our extensive knowledge and skills.



Enlightening Case Studies

Cermets are setting new standards

For a long time, molybdenum pins were commonly used as an essential part of an electrode system in the manufacturing of metal halide discharge lamps. The increased challenges with regard to the product's strength, thermal requirements made it essential to search for an alternative solution. In cooperation with our customers, our "Special Metals Technology" team developed a composite material made up of molybdenum and alumina. After an intensive test phase, the new cermets went into series production and today they have successfully set the new standard.



Precious metal coating for improved weld joints and increased cycle times

Optimizing cycle times while at the same time increasing the product's quality are critical factors affecting a company's profit margin in the lamp and lighting industry. In order to be able to continue to use the molybdenum foils that manufacturers were accustomed to working with in the past in the more advanced manufacturing process, the "Special Metals Technology" team tested and developed several different precious metal coatings. Once the research work was concluded, the result was an extremely robust material composite which has been used successfully since then in the manufacture of top quality products.



Product Assembly

Drawing

Cut to length

Annealing

References

Surface Treatment

Forming

Rolling

High pressure sodium vapor lamp:

- Nb /NbZr1 Sealing elements (standard and customized)
- Tubes
- Wires
- Bent parts/Formed parts



Metal halide discharge lamp:

- Nb /NbZr1 Electrode pins
- Construction wires
- Wires
- Foils
- Cermets
- Electrode systems

High pressure discharge lamp – quartz lamp:

- Coated molybdenum foils as feed-through
- Coated molybdenum foils as welding aid
- Platinum foils and wires as welding aid

Halogen lamp:

- Coated molybdenum foils
- Coated molybdenum pins
- Coated molybdenum foils as welding aid
- Platinum strips and platinum tungsten strips and foils



Further lamp applications:

- Stamped parts partially coated with indium for compact fluorescent lamps
- Spacers of tantalum for infrared heaters
- Niobium electrodes for CCFL Lighting



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