High Yield GEMEDIS®

HIGHLIGHTS

General Features

- ☐ Optimized, precise and reproducible mercury dosing
- ☐ Safe mercury dispensing
- ☐ Products and processes fully compliant with environmental regulations
- ☐ Reduced lamp filling gas degradation, through the getter component action
- ☐ Easy integration into standard and high-speed manufacturing lines

Applications

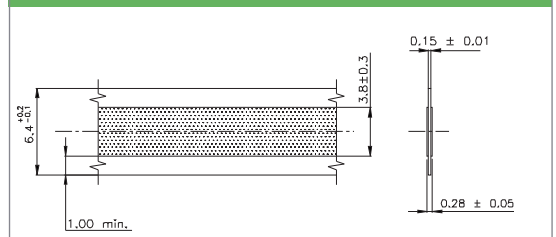
- ☐ Linear fluorescent lamps
- ☐ Circular fluorescent lamps

we support your innovation

saes getters

SAES® High Yield GEMEDIS® (HYG) has been used for the last ten years for safe, optimized and reproducible mercury dispensing in linear and circular fluorescent lamps. As environmental awareness grew and increasingly severe regulations on mercury use were issued, the SAES Getters Group developed and streamlined the production of an advanced technology that enabled lamp manufacturers to fully comply with the new restrictions while preserving the required lamp performance and lifetime. High Yield GEMEDIS offers total mercury yield, allowing the introduction of only the quantity of Hg necessary for optimum lamp operation.

High Yield GEMEDIS description



High Yield GEMEDIS safely contains mercury as a stable solid in St 505 mercury-titanium inter-metallic compound: in the activation process, a copper-tin promoter mixed with SAES' St 505 alloy assures the release of 100% of Hg. This technique enables very precise and reproducible mercury dosing down to a few milligrams, ensuring homogeneous lamp performance.

When the mercury dose is reduced, lamp filling gas degradation typically becomes a critical issue: oxygen traps Hg forming mercury oxide and hydrogen increases the lamp starting voltage. To help reduce these degradation phenomena, High Yield GEMEDIS has been engineered as a double-side coated strip: one side is coated with St 505 and promoter, the other side is coated with SAES St 101® zirconium-aluminum getter alloy, which removes gaseous impurities from the lamp during production and for its lifetime. High Yield GEMEDIS can be integrated into vertical and horizontal lines for the production of tubular fluorescent lamps, since it can easily replace the cathode shield.

Principal characteristics of standard	Product description	
HYG nominal strip dimensions	HYG/CTL/6.3-4.5	HYG/CTL/6.3-3.2
Product code	4E0131	4E0160
Strip width (mm)	6.3	6.3
Coating width (mm)	3.5	3.8
Total thickness (mm)	0.25	0.25
Total mercury loading (mg/cm)	4.5	3.2
St 101 getter alloy weight (mg/cm)	8.0	8.0
Gas emission (ml-mbar/cm)	<10	<10

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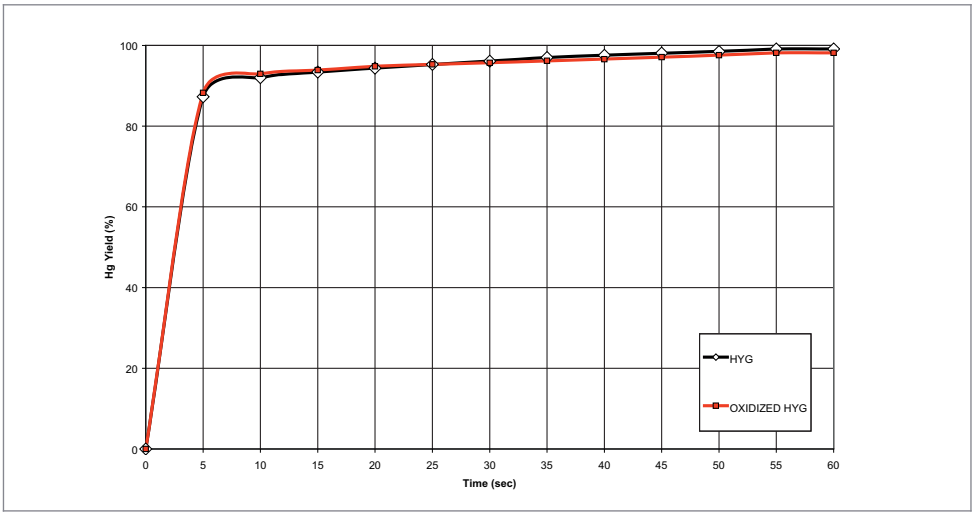
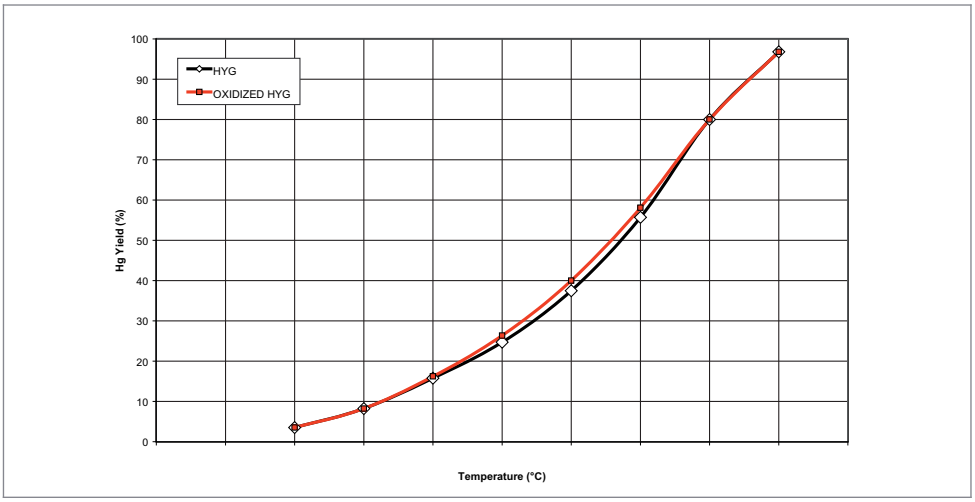
Product Activation

The chart below shows the percentage of Hg released as a function of the heating time at 900 °C for the High Yield GEMEDIS strip. Similar yield characteristics are also obtained after oxidation in air at 400 °C for 45 seconds, to simulate exposure to high temperature during the lamp production process. The Hg release of High Yield GEMEDIS both before and after the oxidation heating is exceptional: more than 95% of its mercury is released for both the fresh and oxidized product, even after heating for 5 seconds.



The following chart indicates the percentage of mercury released as a function of temperature for a total heating time of 30 seconds for fresh High Yield GEMEDIS and after oxidizing in air at 400 °C for 45 seconds. In the time shown, the Hg release approaches 100%. It is important to note that, even under vacuum, below 450 °C practically no Hg emission occurs.



Packaging

High Yield GEMEDIS is packaged in an airtight metal drum containing 14 to 16 spools. Each spool is characterized by a length of about 100 m. The total length of High Yield GEMEDIS strip per drum is approximately 6,000 meters. Silica gel desiccant is used to ensure a dry atmosphere in the drum.

The SAES Getters Group manufacturing companies are ISO9001 certified, the Asian and Italian companies are ISO14001certified also. Full information about our certifications for each company of the Group is available on our website at: www.saesgetters.com

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