

mb-microtec
EXCELLENCE IN MICROTECHNOLOGIES

MEDIA KIT

mb-microtec is the global market leader in the development, manufacture and production of self-illuminating gaseous light sources distributed under the brand name trivalight. These light sources can provide illumination for decades without the need for any additional energy. With approximately 100 employees, mb-microtec supplies customer-specific products to the watch, security, automotive and aerospace industries. Some 90% of the products are exported. The entire development and production stages are carried out in Niederwangen, near Berne, and are subject to the strictest quality requirements.

trivalight®

trivalight is the name of the tritium light sources produced by mb-microtec. They provide illumination for decades without the need for an external energy supply, i.e. without the need for electricity, batteries or even solar energy. The light sources comprise a tiny glass pipe, the inside of which is coated with a thin layer of coloured illuminant and filled with tritium. The tritium emits beta radiation at a relatively constant level. The luminosity decreases in line with the half-life of tritium (approx. 12 years), but remains luminous for a far longer period of time. mb-microtec provides an unchanged 24/7 light guarantee for at least ten years. Oskar Thüler is the founder of mb-microtec as well as the inventor and developer of this self-powered illumination technology.

Tritium

In the past, lighting elements were made to glow using radium, but its radioactivity was long underestimated. In Switzerland, radium was replaced as a result of the first Radiological Protection Ordinance of 1963. Tritium is considerably less radioactive than radium. What's more, both tritium and its decay product, a helium isotope, are non-toxic. As a gas, tritium is the chemical element H₃.

Tritium is an isotope of hydrogen, which can also be found in trace amounts in nature. Tritium is formed naturally, especially in the stratosphere. Due to constant formation and radioactive decay, there is always around the same amount of natural tritium (approx. 3.5 kg) in the biosphere. In addition, tritium is a by-product of energy generation from heavy water reactors and is extracted from the cooling water in an elaborate process. Thanks to two neutrons, the tritium nucleus is unstable and decays with a half-life of just over 12 years, during which time it emits a low level of radiation. In comparison with other beta emitters, the radioactivity of tritium is very low. In water, the radioactive electrons are stopped after a few micrometres and they cannot penetrate the outer layers of skin.

Production

mb-microtec possesses extensive sector-specific production knowledge and the requisite infrastructure. The hermetically sealed elements are manufactured in a climate-monitored production area measuring 1,200 m². The process starts with the manufacture of the tiny glass pipes that are heated and then shaped into the desired form and diameter. The smallest internal diameter possible is 0.1 mm, which is about the same diameter as a human hair. The inside of the tiny pipes is then coated with a layer of colourant – any colour is possible here. In a complicated process developed by mb-microtec, the pipes are filled with tritium gas, cut to the desired length and sealed air-tight. Finally, each trigelight is subjected to a strict quality and safety test.

traser swiss H3 watches

The development and launch of the world's first self-illuminated watch by mb-microtec led to the founding of the traser brand in 1989. Over 300,000 units of "The Original", the first traser watch (official name: P6500 Type 6), were supplied to the US Army, as it met their special requirements. In 2011, traser produced a special model for the Swiss Air Force as well as a limited edition design for two Russian special units. In 2012, a special edition watch was presented to the Russian armed forces to celebrate their 100-year anniversary. From 2015 to 2017, traser was also the official timekeeper of the Tour de Suisse. The brand is active in more than 40 countries and the collection consists of over 50 models.

The proprietary trigelight self-powered illumination technology assures constant and clear readability of the time in the dark. traser provides a 24/7 unchanged light guarantee for at least ten years from the production date without the need for an external energy source. traser watches are robust, durable, water resistant up to 20 bar and 100% Swiss made. traser is a reliable, functional companion for outdoor enthusiasts, adventurers, discoverers and the tactical community. The aesthetically pleasing timepieces are also popular among fashionistas, globetrotters and people who lead an active life.

Historical background

The Bernese chemists Walter Merz and Albert Benteli are among the pioneers of lighting technology. In 1918, they founded the company merz+benteli, which became chiefly synonymous with the adhesive Cementit. Walter Merz's son-in-law, Oskar Thüler, was the first to make tritium-filled glass pipes glow, which constituted a sensational breakthrough in the industry! In 1969, Oskar Thüler founded mb-microtec. Although the letters "mb" in the company name are a nod to the parent company merz+benteli, mb-microtec is operationally and strategically independent.

Sustainability and safety

mb-microtec places strong emphasis on safety, which is why a great deal of money has been invested in safe and ergonomic workstations. mb-microtec's modern new building, which the company moved into in October 2018, meets the highest requirements in terms of fire, earthquake and anti-burglary protection. The utmost level of safeguarding is also guaranteed in the event of power outages. The building was planned and realised by the Burgdorf-based architecture firm Giraudi und Partner. Sustainability and the environment are also topics that mb-microtec is passionate about. The new building was therefore built in accordance with the Swiss Minergie standard. The building also features the latest technical systems to protect employees and the environment, and part of its electricity supply is generated from renewable energy sources and groundwater heat.

mb-microtec is investing in the creation of a tritium recovery facility. The only plant of its kind in the world will make it possible to recycle tritium and to offer customers a service taking back old products containing tritium. This service is scheduled to be offered from 2019 onwards.

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