COMBUSTIBLE ITEMS

Modular Charges Systems

Combustible Cartridge Cases

Nitrofilm

EURENCO
GROUPE SNPE
Combustible Items

Propellants and Propelling Charges Business Unit's combustible items are the product of research performed and experience acquired over more than 40 years from the design and manufacturing of combustible cartridge cases. Thanks to a thorough experience in this field, EURENCO has enlarged its combustible items’ capabilities and provides the complete range of advanced combustible cases for artillery, tank and mortar munitions.

COMBUSTIBLE CARTRIDGE CASES

Our teams were among the first to design and manufacture combustible cartridge cases for automatic loading 155 mm ammunition and 120 mm tank ammunition. Owing to this comprehensive knowledge, EURENCO designs and produces a wide range of combustible cartridge cases used in artillery and tank ammunition:

- 120 mm combustible cartridge cases,
- 155 mm combustible cartridge cases.

Thanks to their characteristics, these cartridge cases bring numerous advantages in comparison with metallic cartridge cases or old bag charges such as:

- Protection of the propellant charge,
- Reduction in barrel wear,
- Additional energy to the charge,
- Increased firing rate,
- Compatibility with automatic loading.

COMBUSTIBLE FELTED LONG CARTRIDGE CASES

EURENCO develops and manufactures combustible felted long cartridge cases for artillery ammunition 155 mm L52, also able to be used in 39 and 45 calibres. Thanks to their adjustable length, these cases are fitted to most of the 155 mm self-propelled and towed howitzers and offer a large range of applications in accordance with required performance in addition to a rigid and fully combustible design.

COMBUSTIBLE MODULAR CASES

With over 15-year expertise in compositions, geometries and processes, EURENCO has a great knowledge in modular cases and deploys cutting-edge technologies to research, design, develop and produce a wide range of combustible modular cases for 155 mm artillery modular charges.

Indeed, EURENCO produces 155 mm combustible modular containers such as bottom charge modules (BCM), using 1 and 2 modules, top charge modules (TCM) with 3 to 6 modules in addition to modular cases for Uniflex charges. These cylindrical cases are made with different assembling modes (linkable or unlinkable) in accordance with needs.

Based on Kraft paper and nitrocellulose, these compositions allow obtaining good combustibility and enough mechanical resistance for manual or automatic loading. Anti-wear additive and anti-migration agents can be directly added to the container composition in order to reduce barrel erosion and to ensure high security level when firing.
NITROFILM AND OTHER COMBUSTIBLE ITEMS

EURENCO manufactures NITROFILM and felted NC horseshoe containers for 60 mm, 81 mm and 120 mm mortar ammunition matching French and international specifications.

NITROFILM

This energetic product, which is mainly nitrocellulose based, is presented in sheets or transformable rolls. The success of NITROFILM is due to its high quality and good mechanical properties, as well as its resistance to water and cold conditions. In comparison with conventional celluloid, EURENCO NITROFILM avoids nitroglycerine migration of multi base propellants used for mortar propelling charges.

It can also be structured with nylon to reinforce its mechanical properties without altering its combustibility qualities.

NITROFILM sheets can be easily modelled by cutting, sticking or forming to obtain various shapes: containers, disks, cases, increments and pyrotechnical igniters.

In addition to military applications, NITROFILM is also used as thermal fuse or container for automotive safety.

FELTED NC COMBUSTIBLE ITEMS

Like combustible cartridge cases, combustible items of various shapes and sizes are manufactured from nitrocellulose by the beater additive felting process.

The combustible horseshoe containers for mortar propelling charges can be impregnated with special additives for protection against water and other pollution agents. Their outstanding success is due to their efficiency and reliability in military combat under all climates. The excellent mechanical properties give no residue after firing, thus granting full ballistic performance safety.

ARTILLERY MODULAR CHARGES

EURENCO works in separate partnership with ammunition manufacturers to develop, industrialize and qualify 155 mm artillery modular charges for 155 mm L39 to L52 artillery guns.

Indeed, EURENCO and NEXTER Munitions team up to develop, industrialize and qualify 155 mm artillery modular charges for 155 mm L39 to L52 artillery guns such as CAESAR 155 mm L52 self-propelled howitzer:

> Linkable Bottom Charge Modules (BCM) for zones 1 and 2,
> Linkable Top Charge Modules (TCM) for zones 3 to 6.

With its long skilled experience in propellants and combustible items fields, EURENCO provides suitable single and multi base propellants in addition to advanced combustible cases for these modules.

Furthermore, EURENCO has invested in a new fully-automated and continuous workshop to manufacture artillery modular charges. This compact unit, which introduced new technologies and skills within EURENCO, is divided in three different areas to reach an optimum safety level:

> Mass production of combustible modular cases,
> Finishing operations of modular cases,
> Loading, Assembling and Packing of artillery modular charges.

EURENCO also partners with BAE SWS Defence on Bi-modular charge system (Bi-MC) for 155 mm L52 and L39 artillery guns for which it develops linkable BCM and TCM charges.
EURENCO’s Modular Charges Division manufactures and provides a complete range of combustible items for various applications:

- **Modular Artillery Charge System (MACS)** for artillery ammunition;
- **Combustible Cartridge Cases (CCC’s)** for tank and artillery munitions;
- **Nitrofilm** for mortar horseshoe containers and automotive safety.

Supported by a production plant in **Bergerac (France)**, as well as a commercial office in **Washington DC (USA)**, the Modular Charges Division is equipped with up-to-date manufacturing capacities:

- Modern facilities for the serial production of combustible cases
- Fully automated and continuous workshop for the loading and assembly of artillery modular charges
- Compact production lines for nitrofilm rolls