

Polyurethane Potting Compound

Flame Retardant
Encapsulating Compound

2K-DOS

Metering, Mixing, and
Dispensing System



Our customer

Bulk Tainer Logistics

Customer benefits

- Materials suitable for ATEX requirements
- Easy to use dispensing set up with high consistency
- Accurate and precise metering, mixing, and dispensing

Potting a bespoke telematics system

Bulk Tainer Logistics provides bespoke transport services for the shipment of bulk liquid products globally, with a portion of its fleet in every continent. It operates a 12,000 strong fleet of chemical, feed, and food-grade tank containers to offer a complete logistics solution for both short and deep-sea bulk liquid transport.

Many of the chemicals it transports are hazardous, and its work is therefore highly regulated; using equipment that has passed the relevant approval processes is essential.

The company wanted to fit its tanks with smart monitoring devices that tracked the movement of the tanks and the product's condition. Additionally, the team planned to integrate weather forecasts and other data sources to build an intelligent model of the state and condition of the product in the tank throughout its journey.

However, Bulk Tainer Logistics was unable to find an off the shelf telematics product that matched its expectations. So, in 2019, the company partnered with Waleed Elmughrabi as its Technical Director, and took the bold step to create Bulk Tainer Telematics Ltd, to develop bespoke GPS systems specifically for the intermodal isotank sector.

Developing a telematics system

Bulk Tainer Telematics' purpose was to produce devices able to create an end-to-end ecosystem that monitors and tracks containers, feeding information into the fleet management system. The team would incorporate artificial intelligence and machine learning, so that the software could learn from historical journeys and

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predict the best routes for the time of year. This would optimise journeys to reduce bottlenecks, as well as reduce the business' carbon footprint.

Because Bulk Tainer was developing a product dedicated to the isotank industry, one of the most important requirements – and biggest challenges – would be passing the compliance requirements, such as ATEX and IECEx.

In addition, because of the nature of the hazardous environment and potentially flammable atmosphere surrounding the devices, safety features and properties of the potting compound used were required.

The company began developing devices to meet the highest ATEX requirements. The design incorporated a robust metal enclosure, with specialised potting inside to meet the requirements of the relevant standards.

Bulk Tainer Telematics therefore needed to pot their devices using specialised resins that were explosion proof and met regulatory requirements.

Choosing a flame-retardant material

To help specify materials and dispensing equipment, Bulk Tainer Telematics reached out to adhesives specialist, Intertronics. Bulk Tainer planned to submit multiple materials to the certifying body, to save a complex approval process should its first choice material go out of production. After listening to the requirements, Intertronics supplied Bulk Tainer Telematics with samples of several flame retardant potting compounds for testing.

After testing, Bulk Tainer decided on a potting compound that met its needs from both a performance and compliance perspective. Importantly, the material is flame retardant to UL94 V-0 at 6 mm and has excellent adhesion to Bulk Tainer Telematics' substrates.

Waleed Elmughrabi, Technical Director at Bulk Tainer Telematics said:

"Because our project was so specialised, we required an adhesives partner that was knowledgeable and experienced. It became clear that we didn't need to consider alternatives, Intertronics were the right company to work with. In the end, many of our materials passed first time, saving us time in the testing and certification process."

Once Bulk Tainer Telematics had selected the material that best suited its needs, Intertronics was then able to advise on appropriate dispensing equipment.

Paul Whitehead, Strategic Accounts Manager at Intertronics said:

"An important requirement for this project was ease of use. Bulk Tainer Telematics were looking for a dispensing system that was as automated as possible, to reduce the risk of human error and achieve high levels of consistency that would reliably ensure product quality."

Intertronics suggested the **2-K-DOS Metering, Mixing and Dispensing System** to accurately meter, mix, and dispense the selected compound. The system has a simple control panel, uses gear pump technology to precisely meter two-part materials, and allows customisation of mix ratio, dispensing rate, and dispensed quantity. The 2-K-DOS is designed with a unique modular approach, for simple configuration and maintenance.

The machine was designed and manufactured to match Bulk Tainer Telematics' process, with an appropriate material reservoir and dispensing hose length. In addition, Intertronics added material heating to improve flow.

A new era for the isotank industry

The device, named BTTM Tracker, has passed its ATEX Zone 1 certification and is currently being manufactured on a dedicated production line in partnership with a local manufacturer in North Yorkshire. The company aims to make 12,000 systems, one for each tank in its fleet.

Waleed Elmughrabi, Technical Director at Bulk Tainer Telematics said:

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“Our industry is unique and brings highly specific requirements. Working with Intertronics was a great experience that met our exact needs. The team was always a phone call away, as well as being incredibly quick to reply to emails.”

In future, Bulk Tainer Telematics intends to market its telematics system to other tank operators. As more businesses in the industry incorporate GPS systems, the company believes that its device, which is bespoke and tailored to the industry, will help tank operators globally create more value.

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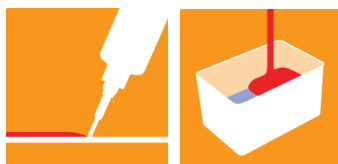
- Cost effective
- Thermally conductive for a variety of low to medium voltage applications
- Flame retardant to UL94 V-0 at 6 mm
- Medium viscosity
- Resistant to UV, water-based cleaning chemicals, motor oil, lubricants, and most dilute acids and alkalis
- Non-toxic
- Cures at room temperature or with heat

Applications include: Electronics, thermal transfer, thermal management, general purpose potting

2-K-DOS Metering, Mixing and Dispensing System

- Processes materials with mixing ratios from 1:1 to 10:1
- Straightforward integration with robotics or automation
- Material pot life alarm automatically purges to maintain fresh material in the mixing nozzle
- Digitally controlled shot size and flow rate for precision
- Reservoir heating and agitation options keep materials flowable, consistent and ready to use
- Built-in level monitoring system
- Configured to your material and process
- Modular design means easy maintenance and repair

Applications include: Electronics and LED potting and encapsulation, casting, form-in-place gasketing and adhesive dots and beads



**Contact us for more information on
potting and dispensing products**

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