



Firefighters' emergency clothing



EU Type Examination Certificate number: B-394/2023

The **Dávid MR firefighting clothing** is made using materials **developed and manufactured in-house** by Sirius Produkt Kft. The material is a broad spectrum tested fabric, which is described below.



Antistatic



Chemical resistant



Flame retardant



Welding



Arc protection



Protection against rain



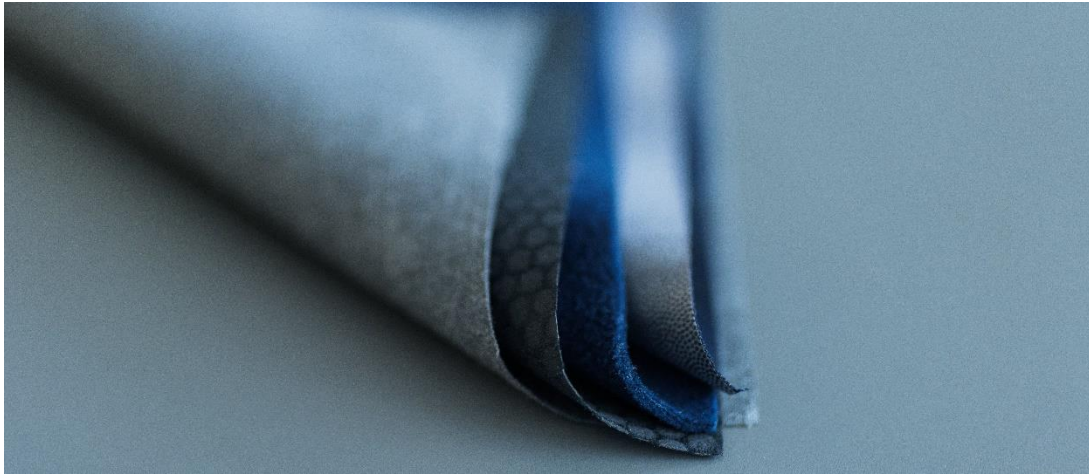
*“**Firefighting** is the act of extinguishing destructive fires. A firefighter's job is to prevent the destruction by fire of people's lives, surroundings and property.”*

Wikipedia

The firefighting emergency clothing **developed by Sirius Produkt Kft. is a product that is protected by a utility model.** During the development process, materials and technical solutions were used which are a novelty in the current firefighting clothing range (*membrane laminated fabric, Outlast-heat buffer-material*).

The **outer layer** of the garment is made of a high-standard technical content fabric **developed and manufactured in-house (Dávid MR)**, which has proven its suitability for many years in areas of application where there is a clear need for high-standard technical content. (*see below*)

- EN 1149-5:2019
- EN 13034:2005+A1:2009 PB (6) típus
- EN ISO 11612:2015 A1+A2, B3, C2, E2, F3
- EN ISO 11611:2015 A1+A2, 1-es osztály
- EN 61482-1-2:2014 2-es osztály
- ISO 13506-2 (ThermoMan)
- MSZ EN 343:2019
- EN ISO 13688:2013
- CE 1523



In the construction of the emergency firefighting clothing, we have taken into account all the factors that ensure excellent safety, protection, wearability and ergonomic performance.

The structure consists of five layers:

Layers: 1 and 2: **Dávid MR fabric laminated with a PU membrane:** (Since the membrane and the fabric act as one material in a special process, preserving its breathability, it eliminates the possibility of water getting between the fabric and the membrane. The durability of water resistance has been tested fifty washing cycles.)

Layer 3: **Flame retardant polar:** (We use an intermediate lining material that is lightweight and provides adequate protection against cold.)

Layer 4: **Outlast:** (Outlast® thermo material acts as a thermal buffer, significantly reducing the user's heat peaks. This significantly improves comfort and prevents perspiration by up to 48%*. Its properties also help to keep its wearer comfortable in summer weather.)

Layer 5: **Dávid MR RS fabric:** (The inner lining fabric of the garment, which is a lightweight version of the Dávid MR fabric. It is made with ripstop weaving technology, resulting in an extremely durable fabric.)



The development of the design was based on **instructions from active, professional firefighters** to find solutions that functionally meet the needs.

There is one open and one closeable pocket under the cover strap of the zipper (*can be opened while wearing gloves*).

The inside of the jacket is fitted with pockets on both sides, one open and the other with a zipper.

The jacket has a quick release zipper.

The elbows are lined with 5 mm polyfoam, the outer layer is reinforced with double quilted fabric.

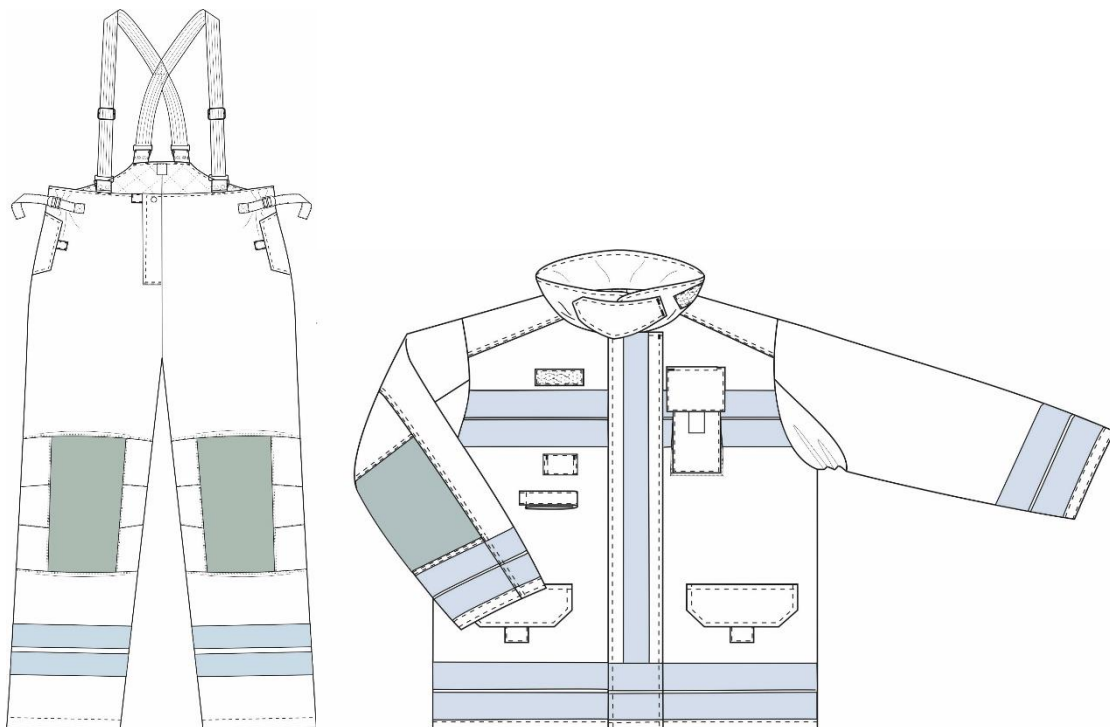
The knees are lined with 5 mm polyfoam, the outer layer is reinforced with double quilted fabric.

The shoulders are lined with 5 mm polyfoam to facilitate the carrying of equipment.

There is a reinforced rescue strap at the neck part that can be handled with gloves on.

The wrist part has a reinforced cuff, the thumb with sleeve hooking slit.

Reflective strips are applied by heat sealing instead of stitching, eliminating seam degradation.





To ensure that the fabric and the protective clothing made from it meet all the protection standards listed above, tests have been carried out to ensure that they comply with all EU regulations.

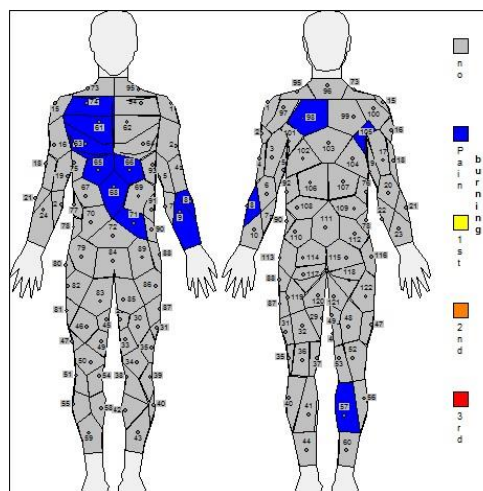
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- Innovatex Zrt.
- Mádi és Társa Kft.
- Hohenstein Laboratories GmbH & Co.KG.
- STFI Sächsisches Forschungsinstitut e.V.
- BTG Testing & Certification Ltd

During development, we specifically focused on the protective ability of the fabric against flame and various thermal effects, so we used components in the composition of the fabric that do not contain flammable materials. **Protective clothing against heat and flame ISO 11612:2016 A1+A2, B1, C1, E2, F1, Protective clothing for use in welding and allied processes – MSZ EN ISO 11611:2016 A1+A2, 1-es osztály.**

As a result, the figure below illustrates the distribution of burns expected after a possible explosive accident (8 seconds). **BTTG Testing Certification – Ref.: E-0033104 ISO 13506-2:2017**
(During the test, only a 100% cotton short-sleeved T-shirt was used as underwear.)



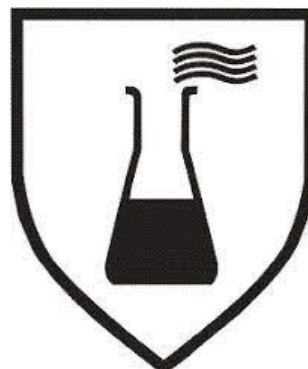
Burn Injury Prediction (according to ISO 13506-2: 2017 clause 8.3.3)

Pain	1st° Burn	2nd° Burn	3rd° Burn	2nd° + 3rd° Burn
9.8%	0.0%	0.0%	0.0%	0.0%

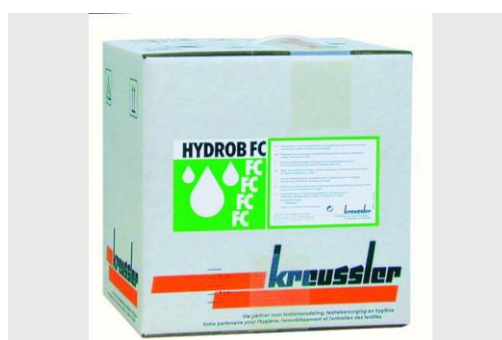
Protection against various contaminants, in particular chemicals, is of paramount importance in certain industrial segments. The David MR fabric is tested according to the relevant test method Type 6 for



the following chemicals: H_2SO_4 , NaOH, o-Xylene, h-Butanol, HCL, HNO_3 . Protective clothing against liquid chemicals, MSZ EN 13034:2005+A1:2009 Type 6.



Most manufacturers offer a 5-wash guarantee for all impregnated surfaces. In order to maintain the protective function of the fabric during use (*MSZ EN 13034:2005+A1:2009, Type 6*), **unlike other types of clothing, firefighting clothing requires a further impregnation treatment per every 3 washes.** Accordingly, Sirius Produkt Kft. recommends the use of **Hydrob FC impregnating agent** for the proper maintenance of the Dávid MR fabric. **Provided the user follows the specifications in the manufacturer's instructions, protective clothing impregnated at appropriate intervals can be expected to provide protection as described in the standard throughout the cycle of use.**





In the design and development of the firefighting protective clothing, it was very important to ensure that the clothing provides maximum **protection against water penetration**. To make the fabric **waterproof** and to prevent water from getting in between the layers, a waterproof but **breathable membrane was laminated** to the fabric with a heat seal. The durability of the process was tested by performing **50 industrial washes**, the results of which showed the adequacy of the protection against water penetration. **EN 343:2019**

An important protective property we kept in mind is the protection against various electrical effects. **Electrical resistance - welding - ISO 11611:2016, Class 1 A1+A2, live working - Protective clothing against the thermal hazards of an electric arc - EN 61482-1-2:2015, Electrostatic properties - 1149-5:2019**. The composition of the material and the technological solutions used allow the above protection levels to be met in a single fabric and, unlike the commonly used double-woven fabric, the Dávid MR fabric also meets the requirements of Class 2 of the standard for protection against electric arc in a single layer.





In order to achieve the highest possible level of safety by using the appropriate protective clothing, Sirius Produkt Kft. recommends our **Dávid BodyWear undergarments**, manufactured in-house, which significantly increase the protection of the person.

Dávid BodyWear flame-retardant, anti-static undergarments



Collared or round-neck T-shirt



Undertrousers



Sweater



Face mask



Sirius Produkt Kft is a 100% Hungarian owned company. We are proud of the fact that our products are made in Hungary, in our own sewing factory. Only the initial stage of the production of the raw material is done abroad (Europe), so it can be said that 95% of the production of Dávid MR and Dávid BodyWear products is done in Hungary.

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