PROFESSIONALS WORKING WITH MOLTEN METAL, FLAMMABLE LIQUIDS, AND CERTAIN CHEMICALS ROUTINELY FACE THREE CHALLENGES IN CHOOSING FLAME-RESISTANT (FR) PROTECTIVE APPAREL—PROTECTION, DURABILITY, AND COMFORT. CARBONX® C-59 REPEL™ HAS PROVEN AN IDEAL SOLUTION IN MEETING ALL THREE OF THESE CHALLENGES.

CARBONX C-59 REPEL SHEDS MOLTEN METAL, FLAMMABLE LIQUIDS, AND CERTAIN CHEMICALS LIKE NO OTHER FABRIC

CarbonX C-59 Repel provides an extraordinary level of protection and durability. It is made of the patented CarbonX blend of high-performance fibers and a proprietary compound that enables the fabric to remarkably shed spatter, sparks, and splash. C-59 Repel is one of the few non-aluminized FR fabrics able to pass the ASTM F955 pour test for both molten iron and aluminum.

With an encapsulated barrier of silicone, C-59 Repel also shields against harsh weather conditions, reducing wind penetration and repelling water.

C-59 Repel is significantly lighter than other similar application protective options. Its lighter weight increases a wearer’s comfort and productivity as it decreases the amount of muscle exertion and heat stress that builds up over the course of a work shift. Although C-59 Repel is water resistant, micropores in the fabric make it breathable, further enhancing comfort.

Constructed to be truly non-flammable, C-59 Repel delivers:

**Unmatched Protection:** C-59 Repel will not burn, melt, or ignite, and greatly outperforms competing products when subjected to direct flame, extreme heat, molten metal, flammable liquids, and certain chemicals. Even after intense heat and flame exposure, C-59 Repel maintains its strength and integrity and continues to protect. It also limits heat transfer much more effectively than FR fabrics of similar weight.

**Comfortable Protection:** C-59 Repel is lightweight, flexible, and odor resistant, and it dries quickly. CarbonX offers a variety of Repel fabric options, depending on the hazard risk.

**Permanent Protection:** Because C-59 Repel is inherently flame resistant, its thermal protective properties will not wash out or wear away. Apparel made from C-59 Repel can be worn again and again, even under conditions of daily exposure, providing significant value to users. As opposed to leather, C-59 Repel is chromium-free, making it easy to dispose of apparel at the end of its wear life. (Apparel that is torn or damaged should be removed from service.)

Sparks and spatter simply roll off C-59 Repel, making it ideal for use in jackets, removable sleeves, coveralls, aprons, bibs, and spats.
while competitors work to ensure their products meet industry standards, our goal is to exceed those standards and go above the norm in providing a persistent thermal barrier with minimal heat conductivity. CarbonX fabrics and apparel offer protection far beyond the industry’s “No Melt, No Drip” requirements, which typically only require that protective fabrics not contribute to burns in a thermal exposure (as opposed to actually protecting the wearer from a thermal event).

**TECHNICAL PERFORMANCE—ASTM F955 POUR TEST RESULTS**

| Maximum calorimeter temperature rise during the first 30 seconds and time to second-degree burn after impact with molten aluminum and iron |
| --- | --- | --- |
| Hazard | Top Cal. | Bottom Cal. | Time to Second-Degree Burn According to Stoll Curve (Seconds) |
| C-59 REPEL | Aluminum | 17.1 | 11.9 | None |
| C-59 REPEL | Iron | 10.3 | 12.8 | None |

**Average visual rating of outer layer fabric exposed to molten aluminum and iron**

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Charring</th>
<th>Shrinkage</th>
<th>Adherence</th>
<th>Perforation</th>
</tr>
</thead>
<tbody>
<tr>
<td>C-59 REPEL</td>
<td>Aluminum</td>
<td>2</td>
<td>No shrinkage</td>
<td>1</td>
</tr>
<tr>
<td>C-59 REPEL</td>
<td>Iron</td>
<td>3</td>
<td>Moderate charring</td>
<td>1</td>
</tr>
</tbody>
</table>

Evaluated visually for:
- Extent of charring. Five grades ranging from 1=s light scorching, fabric had small brown areas to 5=severely charred, large holes or cracks, very brittle.
- Shrinkage or the extent of fabric wrinkling around the splash area. Five categories ranging from 1=no shrinkage to 5=extensive shrinkage.
- Adherence or amount of metal sticking to the front of the fabric. Five categories ranging from 1=none to 5=large amount of adherence of metal to the fabric.
- Perforation or the extent of the destruction of the fabric, usually detected by holding it up to a light. Five grades ranging from 1=none to 5=heavy perforation, the fabric exhibited gaping holes or large cracks or substantial metal penetration to the back side.

ASTM F955 Pour Test: The standard test method for evaluating heat transfer through materials for protective clothing upon contact with molten substances.

**DEMONSTRABLY SUPERIOR**

CarbonX partners with leading safety manufacturers and distributors to deliver customized, non-flammable personal protective equipment (PPE) solutions for the world’s most hazardous environments. CarbonX is used in protective applications for industrial safety, construction, welding, molten metal, utilities, pulp and paper, oil and gas, firefighting, motorsports, and tactical/police. When confronting these dangerous conditions, professionals and enthusiasts can rely on CarbonX to provide them with the protection they deserve.

For more information about CarbonX fabrics and apparel, call 801-415-0025 or visit www.carbonx.com.