



CASE STUDY: SOUNDOFF SIGNAL

Award-winning emergency vehicle lighting enabled by award-winning SILASTIC™ Moldable Silicone

The challenge

Firefighters arrive at a large structure fire at night; smoke darkens the area and visibility is a significant issue. The fire is intense, and trucks parked close are exposed to heat, soot and debris.

An EMS vehicle responds to an emergency on a foggy roadway. It is essential that other motorists see the vehicle to protect the first responders. The scene is chaotic and there is a potential for damage to the EMS vehicle.

In both scenarios, good lighting is essential for both safety and visibility – but both environmental and situational impacts exist that could limit lighting on the scene. These include darkness and low visibility as well as risk of heat, debris and impact damage that could limit light output. High-brightness LEDs help mitigate some of these issues, but high-quality, innovative lens materials provide a distinct advantage.

The solution

Designing and manufacturing emergency vehicle lighting and warning electronics is serious business. As the global leader in this type of lighting, SoundOff Signal has created a new, next-generation design for law enforcement, emergency, fire and work vehicles.

SoundOff Signal in Hudsonville, Michigan, set out to create a new lamp that could withstand extreme environments, dirt, gravel impacts and other road conditions while providing intense light output, high durability and longer life. In addition to being rugged, the lamp's materials must offer good photothermal stability to avoid yellowing from intense UV and other environmental exposure.

SoundOff turned to the team of silicone experts at Dow for collaboration and support for their new design ideas.

Building on prior success with SILASTIC™ Moldable Optical Silicones, SoundOff has developed an award-winning series for their popular mpower product line. With both 6x4 and 7x3 inch footprints, these certified lamps deliver in demanding fire and EMS applications.

mpower 6x4 Silicone Light:



Warning



Backup



Stop/Tail/Turn and Turn

mpower 7x3 Silicone Light:



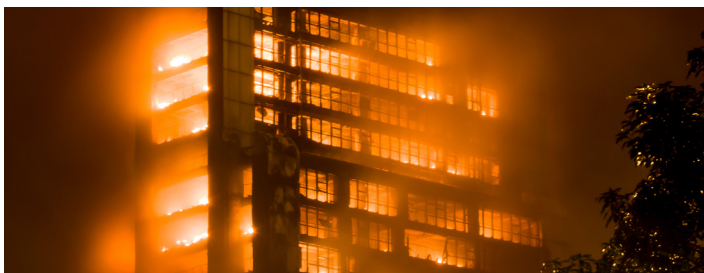
Warning



Backup



Stop/Tail/Turn and Turn



These durable silicone lens lamp assemblies provide:

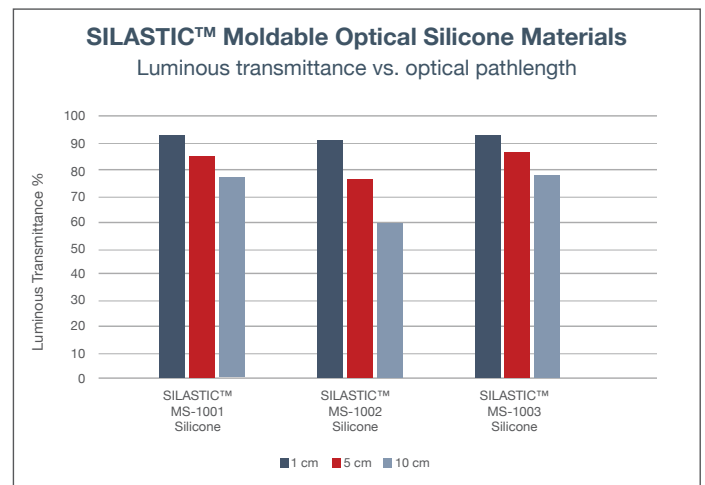
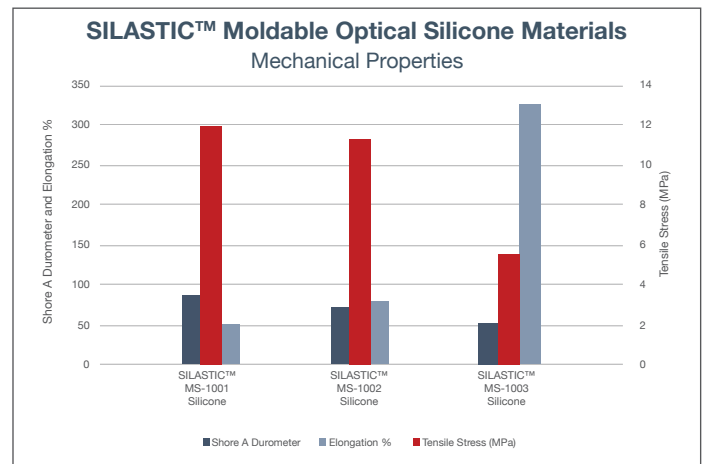
- Powerful tri-color light output at 180° viewing angles; perfect for fire and EMS apparatuses
- High UV and photothermal stability to prevent lens yellowing over time
- Rugged weather-resistant IP67 enclosure; improved sealing performance, preventing water ingress
- Durable clear silicone lens; resistant to damage, gravel pitting, scratching or cracking
- Extreme functionality: customizable for use as warning, stop/tail/turn, backup or backup with warning, all in the same footprint

With industry standard mounting configurations, and a multitude of available colors and flash patterns, mpower 6x4 and 7x3 Silicone Lights are ideal for any emergency lighting application. Furthermore, the durability of the silicone lens provides further longevity of the lights in the field, minimizing replacement and downtime.

The success

This optically clear silicone elastomer provides high transmittance and low haze, while meeting the demanding environmental challenges of fire and EMS lighting. SoundOff collaborated with Dow to design the mpower 6x4 and 7x3 Silicone Lights. These properties include:

- High light transmittance for better optical clarity and longer optical path length
- High hardness with reduced surface tack to enable tougher, more rigid injection molded parts
- Material toughness for accurate part fixation and high IP rating
- Low haze and scatter, maximizing light output in a given direction
- Excellent photo-thermal stability for low yellowing
- Design flexibility, allowing for lens and other functional aspects not possible in rigid plastics





About SILASTIC™ Moldable Optical Silicones

SILASTIC™ Moldable Optical Silicone elastomers are designed to meet the challenging needs of the optical market, including the need for high purity, good transmission, optical reflectivity, moisture resistance and photothermal stability.

These two-part, heat-cure silicone resins are especially suitable for precision molding applications because micrometer-sized features can be replicated on the lens surface to direct light output. Silicone optical molding materials can be molded into complex shapes, withstand heat and resist yellowing better than plastic, and are lighter than glass.

Learn More

We bring more than just an industry-leading portfolio of optics materials. As your dedicated innovation leader, we bring proven process and application expertise, a network of molding and optical experts, a reliable global supply base, and world-class customer service.

To find out how Dow can support your lighting applications, visit dow.com/lighting.

To learn more about SoundOff Signal, visit soundoffsignal.com.

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