

Fireflex®

First choice for flame-retardant acoustic solutions

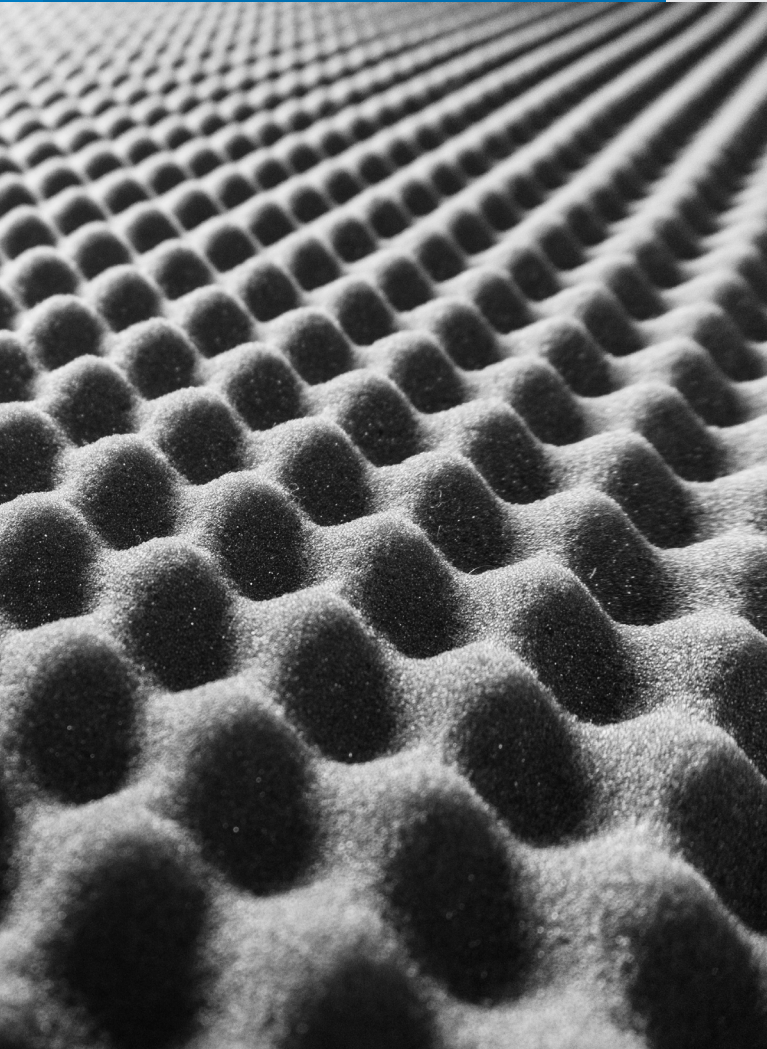


A flexible approach for a safer working environment

Effective silencing is no longer an optional extra in industrial settings. It is essential to protect health, improve working standards and safeguard the environments in which workers, machines and vehicles operate.

Fireflex® is a key component in our range of silencing solutions. This versatile material can be tailored to meet a wide range of requirements. To offer enhanced protection for employees and installers, the portfolio includes two foams using a halogen-free flame retardant that significantly reduces toxic fumes released during combustion.






For industrial equipment owners, Fireflex® offers unparalleled versatility, health and safety benefits and an excellent customer experience.

Versatility

- Suitable products for every environment
- Smart combinations for tailored performance
- Comprehensive approach with Silentium³⁺

Health & Safety

- Certified flame resistance
- Easy handling and cleaning
- Halogen-free variants 

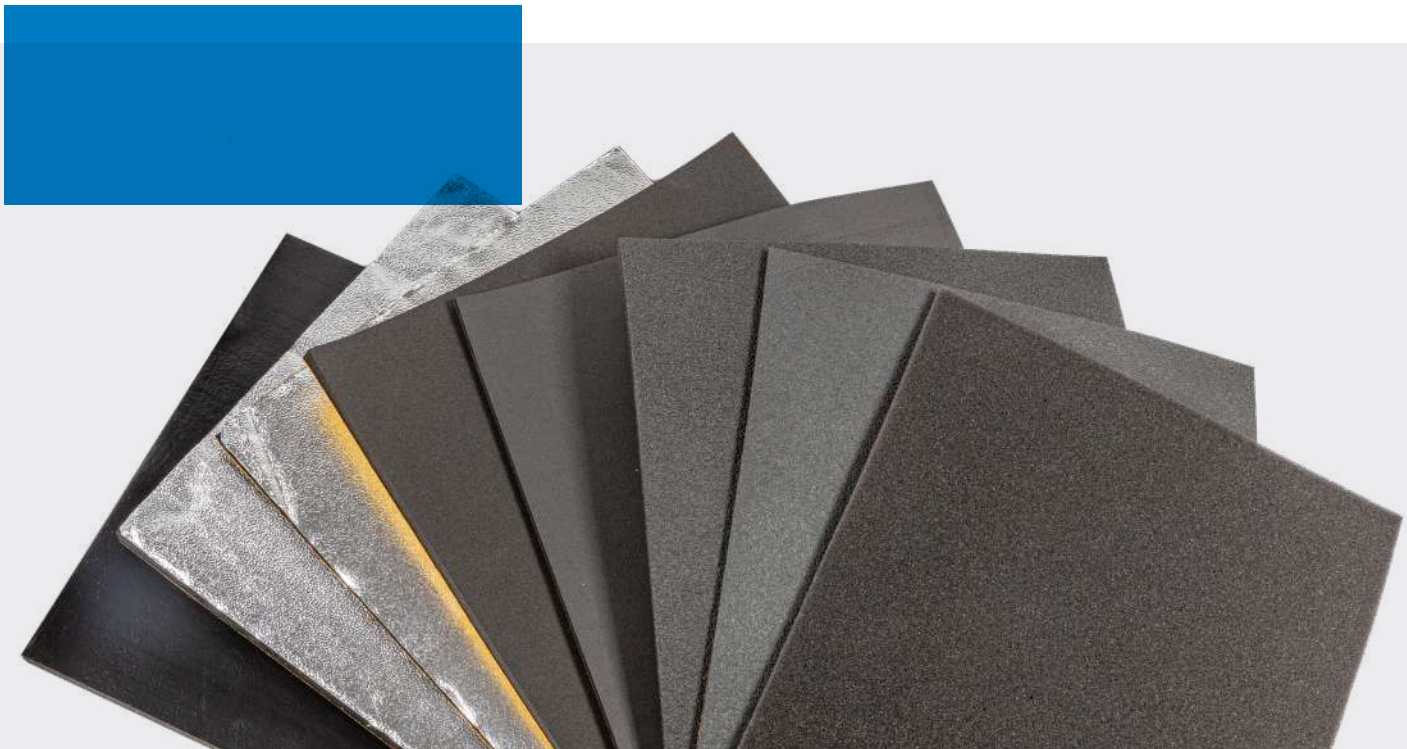
Customer experience

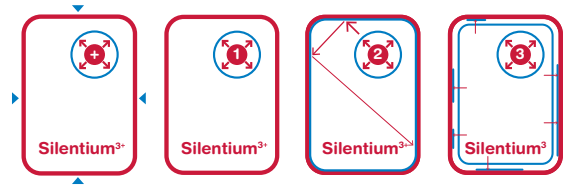
- Easy, flexible installation
- Increased efficiency
- Reliable long-term performance

The material of choice for industrial equipment

Carpenter Co. has more than 25 years of experience in manufacturing custom-made silencing solutions for industrial equipment. As well as protecting the environments and people around machinery, our innovations help customers to meet and even exceed noise regulations.

We focus on three techniques to address noise and vibration: acoustic absorption, transmission loss and damping. Acoustic absorption absorbs reverberated noise within the canopy. Transmission loss decreases the transmission of noise to the outside. Damping reduces the vibration of metal sheets so that they create less noise. PU foams are often used for sound absorption, but they can also be used as a base for creating sound reflecting or transmission loss complexes.





Silentium3+: our 3-step approach



Fireflex® is one of the core materials for our Silentium3+ method. After intensively analyzing your equipment, we start a three-phase process during which we work with each customer to research, design and test the ideal solution for their individual requirements. We consider the specific noise signature of the equipment, the operating environment and any additional requirements to create tailored products for compressed air, off-grid power generation and HVAC (in residential, light commercial and industrial applications). Its unique qualities and versatility have also made Fireflex® a popular choice for customers in the mobility and consumer goods sectors.



Fireflex® products and product combinations are ideal for canopy air inlets and outlets, discharge air, canopy doors and inner walls.

Choose your Fireflex®

Materials used in industrial equipment such as compressors, power generators or HVAC systems must withstand various external influences depending on the situation. Besides sound absorption and acoustic behaviour, the material is selected based on temperature and humidity properties.

Environment	Chemical base	Halogen-free	Product
Dry environment	PUR – Ester Foams		Fireflex® S 305
			Regilen 30 SV GA
			Fireflex® S 606
			Regilen 55 SV HFR*
Humid environment	PUR – Ether Foams		Fireflex® T 30N
			Fireflex® T 30X

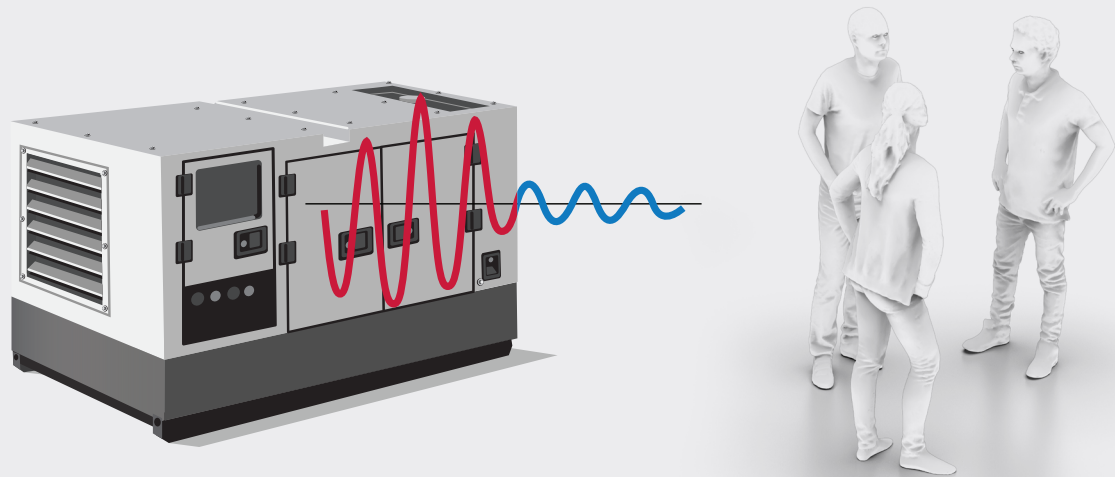
* Regilen 55 SV HFR performance acc. to UL94 HFI however it is currently not certified



Fireflex® top layers are selected to fulfil specific material requirements (see pages 8-9 for more information).

Material requirements	PU film	Non-woven	Glass cloth	Aluminium facing
Improved acoustic properties especially in smaller thickness	•	•	•	•
Barrier to moisture, dirt, grease and chemicals	•	•	•	•
Aesthetical function	•	•	•	•
Enhanced protection			•	•
Reflective surface (more heat resistance)				•

Other specific top layers are available on request. Contact your Carpenter salesperson to discuss the best solution for your requirements.



Smart combinations for tailored performance

Every industrial machine presents its own challenges, depending on its purpose, components and operating environment. To create the material of choice, we combined decades of experience with highly developed technologies, resulting in a comprehensive range of solutions. Fireflex® can be laminated with various top layers and also offers the option of self-adhesive backing to deliver exactly the right properties for the application.

Which top layer do you need?



PU film is a polymer surface treatment applied directly to selected materials. It adds a textured, aesthetically pleasing surface as well as improving sound absorption. Providing a barrier to moisture, dirt, grease and chemicals, the PU film makes the surface cleanable after equipment rental. It achieves equivalent acoustic performance to other materials but with less thickness.



Non-woven provides a barrier to moisture, dirt, grease and chemicals, and makes the surface cleanable after equipment rental. Various fabric options are available, allowing acoustic properties to be tuned. Non-woven has a pleasant look and feel and achieves equivalent acoustic performance to other materials while requiring less thickness.



Glass cloth adds protection, enhances acoustic performance and makes the surface cleanable after equipment rental. Glass cloth products feature a more robust facing made of glass fibre. This is suitable for high pressure waterjet cleaning and also offers good heat resistance.



Aluminium facing has a rugged, reflective surface that provides an impervious barrier to moisture, dirt, grease and chemicals. The aluminium facing makes the surface more resistant to radiated heat as well as reflecting infrared heat in hotter areas of the equipment, such as the outlet of a genset. Aluminium facing is also available with reinforced scrim.

Formats and options for the perfect match

Fireflex® solutions are supplied in rolls, sheets and cut parts, with or without adhesive backing. They are also available with optional facings and composites using a heavy mass barrier.

Protecting people, equipment and the environment

The Fireflex® portfolio delivers enhanced acoustic performance along with fire resistance and a range of additional properties to improve health, safety and environmental performance.



Certified fire safety

Fireflex® is self-extinguishing and prevents the spread of flames and burning droplets. It meets rating HF1 of the UL 94 horizontal burning test, a standard requirement for electronic equipment, making it a preferred material for industrial equipment. It also meets the requirements for other flame tests such as FMVSS 302 and ISO 3582.



Easy handling and cleaning

Available in multiple formats, Fireflex® is easy and safe to handle. It does not release fibres when cut, minimising the risk of skin irritation or allergic reactions during installation. The base material can be combined with splashproof and washable top layers for easy cleaning, even with high pressure. This makes it ideal for rental machines, allowing owners to provide spotless equipment to the next client.



Halogen-free variants

There is increasing evidence of adverse health and environmental impacts from halogenated flame retardants, which release hazardous toxins on burning. Some halogenated substances have been banned and legislation is set to become even more stringent. The Fireflex® portfolio therefore includes two foams using a halogen-free flame retardant that significantly reduces toxic fumes released during combustion.

Convenient, durable and easy to use

An integral part of our Silentium3+ approach, Fireflex delivers the ultimate customer experience right from the start of your project. Your silencing solution is designed in partnership with you and produced efficiently with minimal waste and maximum convenience.



Easy installation

Fireflex® materials are easy to cut using standard cutting techniques. They feature a self-adhesive layer for straightforward assembly with no additional fixing required. The adhesive allows for adjustment and repositioning in the first hour after assembly, after which it provides lifetime adhesion.



Increased efficiency

Fireflex® is supplied in kit form, reducing the amount of time needed for the canopy assembly process. The elimination of mechanical fixings and extra grids leads to further time savings.



Long-term reliability

Fireflex® is extremely durable. The material is formulated to prevent delamination and void areas. Its stable foam structure shows high mechanical strength, avoids contamination due to fine particles and does not release fibres.



About Carpenter

Founded in 1950, Carpenter Co. is the world's largest vertically integrated manufacturer of polyurethane foams. Carpenter also serves a diversified global marketplace with polyurethane chemical solutions, polyester fibers, and insulation materials through a network of more than 70 production locations. Our 6,500+ employees across the globe seek to provide the most innovative products and solutions with a focus on enhancing the quality of people's lives while being a good steward of our resources

Tailored solutions and innovations

The key to the success of PU foams is their seemingly endless versatility. Many everyday objects would be unimaginable without their unique benefits, which include silencing, sealing, filtering, carrying, protecting, supporting and comforting attributes. These can be provided in almost any combination, allowing us to develop solutions and systems with the exact functionalities required by every market we serve.

Find out more at:

www.carpenter.com

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