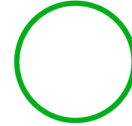




GREENBUILD
SUPPLY



LSZH LOW SMOKE ZERO HALOGEN

*High Performance, Safe & Ecofriendly
Cable Management Solution*



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Section 1:

Introduction

The construction sector has evolved to prioritise sustainability, environmental conservation, and safety. The use of LSZH (**Low Smoke Zero Halogen**) materials, particularly for electrical cable management, exemplifies this transformation.

A significant concern with widely used materials like PVC conduits and fittings (Polyvinyl Chloride) is its environmental and safety implications especially when subjected to fire or heat. PVC combustion can unleash toxic halogenated compounds detrimental to both the environment and living beings and therefore. LSZH emerges as a beacon of hope in this context by decisively negating such risks.

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The construction sector is undergoing a transformation, with a focus on sustainability, environmental conservation, and safety.



Section 2:

Why LSZH?

In the construction sector, traditional materials used as **electrical cable management solutions**, particularly PVC (Polyvinyl Chloride), have been widely chosen due to their inherent advantages and cost-effectiveness. But, the accelerating inflation of materials and labour continues to drive up the cost of building and a closer look at both materials PVC and LSZH shows that LSZH has now become the more valuable choice when building new infrastructures by setting a new standard for the industry.



Further, a significant drawback associated with PVC is its response to high temperatures or direct fire exposure. When subjected to such conditions, PVC combusts and discharges toxic halogenated compounds. These emissions not only pose direct health risks to humans, leading to respiratory complications and potential long-term health issues, but also have detrimental effects on the environment. The harmful residues can contaminate water sources, degrade air quality, and contribute to broader environmental degradation.

Recognising these alarming consequences, the industry's focus has shifted towards seeking safer and more environmentally friendly alternatives. With **LSZH conduits and fittings**, the risks associated with toxic emissions during combustion are drastically reduced. Its design inherently minimises the release of harmful compounds, making it a **preferred choice for modern applications that prioritise both safety and environmental sustainability**.



Section 3:

Key Material Characteristics



Fire Resistance

In the vast repertoire of construction materials, LSZH emerges with a suite of distinctive attributes that set it apart. Foremost among these is its fire resistance. The non-flame propagating nature of LSZH conduits is a sentinel against rampant fire spread, offering a fortress of safety.



Broad Temperature Stability

Its broad temperature stability ensures that LSZH remains unyielding across a spectrum of temperatures, bolstering its reliability.



Zero Halogen

The “Zero Halogen Verified” stamp is not just a certification but also a promise of significantly reduced toxic emissions during combustion. When ignited, its light smoke profile means less dense, non-toxic smoke, mitigating inhalation hazards.





Resilience

Additionally, LSZH's resilience ensures there's no material drip under flame, curtailing secondary fire threats.



High Level of Strength

Another advantage lies within its physical properties and high level of strength that ensure great durability, protection and reliable performance in various applications in public spaces over a long time.



UV Resistance

For infrastructures exposed to sunlight, its UV resistance guarantees prolonged durability, while its impact rating testifies to its formidable resistance against physical stresses.



Environmentally Friendly

This material isn't just about strength and safety but also its environmentally friendly nature epitomises the essence of eco-conscious construction.



Suitable for Green-Star Projects

Furthermore, for projects with an eye on green ratings, LSZH's potential Green Star Credits provide a competitive advantage. Particularly in high-traffic zones, LSZH+ stands as a guardian, ensuring that in emergencies, patrons can exit without the menace of toxic smoke.



Section 4:

LSZH in Global and Australian Contexts

The global construction and manufacturing landscape is dotted with the evolution of various materials, each marking its own era. However, occasionally, a material emerges that not only addresses the contemporary challenges but also sets a new standard for the industry. LSZH (Low Smoke Zero Halogen) is one such groundbreaking material, gaining traction worldwide not only for electrical applications. While its attributes have been recognised globally, in Australia, its significance is especially pronounced. Australia's commitment to both safety and environmental sustainability makes LSZH particularly relevant, aligning with the nation's ethos of adopting progressive and eco-conscious solutions.

The introduction of LSZH by Greenbuild Supply in the Australian market is not a mere addition to the catalogue of available materials. It signifies a conscious choice driven by the material's unparalleled quality and safety features. This confidence in LSZH is further solidified by its selection and approval for a multitude of metropolitan infrastructure **projects such as metro tunneling, mining, hydro pump constructions, cold storage and solar farms**. The endorsement of such high-profile projects testifies to LSZH's potential as a key player in shaping Australia's modern construction paradigm.

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Section 5:

Comparative Analysis of PVC and LSZH

Flame Resistance

When navigating the world of construction and electrical insulation materials, two names prominently arise, that is, **PVC and LSZH**. Each material possesses distinct attributes, giving them specific advantages and limitations.

PVC is widely recognised for its flame-resistant properties due to its chlorine content and is not without its drawbacks. While it stands its ground against fire, once combusted, PVC conduits become a source of toxic halogenated compounds.

Contrarily, **LSZH** is crafted to offer flame resistance without the accompanying release of halogens upon combustion, signifying a more refined and safer approach to fire hazards. Another crucial difference between the two surfaces when subjected to fire.

Release of Smoke & Toxic Emissions

PVC, upon burning, emits a dense, obscuring black smoke, potentially hindering evacuation and rescue efforts. Beyond the immediate visible threats, there's the issue of toxic emissions. Burnt PVC releases hydrochloric acid fumes, a nightmare for both human health and sensitive electronic equipment.

LSZH cable support systems, in stark contrast, emit minimal smoke, ensuring improved visibility and consequently, heightened safety during fire emergencies. LSZH, being conscientiously designed, curtails the production of toxic emissions, thereby minimising risks to both individuals and devices.

Flexibility

In terms of flexibility, **PVC**, though versatile, often requires the addition of plasticizers to achieve the desired flexibility. Over time, these can leach out, compromising the material's integrity.

LSZH, though typically more rigid, can be tailored to desired flexibilities without resorting to potentially harmful additives, ensuring both safety and performance.

Environmental

Environmental factors also come into play.

UV rays can degrade **PVC** unless it undergoes specific stabilisation processes. Furthermore, the environmental footprint of PVC is concerning, as its production and disposal can release dioxins, adding to environmental pollution. Lastly, PVC's cost-effectiveness has made it a staple for a variety of applications, from cable insulation to piping

LSZH naturally exhibits commendable resistance to UV degradation, making it a long-lasting choice for electrical applications under sunlight exposure. LSZH's environmentally-conscious composition ensures a reduced emission of harmful substances, aligning with the modern emphasis on sustainability. LSZH carves a niche for itself in environments where safety and equipment protection take precedence.

LSZH is the material of choice for public areas, spaces with restricted movement, and zones housing sensitive equipment, as it ensures minimised harm during unforeseen incidents.



Section 6:

Compliance

The following rigorous verifications and tests provide assurance that our LSZH conduits and fittings are manufactured to meet **the design specifications of AS2053**. They prioritise fire safety, minimise toxic emissions, and ensure reliable performance, making them ideal for electrical installations in critical infrastructure and public projects.

Accreditation: ISO 9001 (manufactured under ISO9001) & ISO 14001

ASTM E662 (Density Of Smoke)

This test assesses the density of smoke emitted by the conduits and fittings. LSZH materials produce minimal smoke, which is non-toxic, reducing the potential health risks associated with smoke inhalation and visibility-reduction during fire incidents.

UL94 (Vertical Burning Test)

This test determines the fire resistance rating of the conduits and fittings. The 5VA rating indicates the highest level of fire resistance. Achieving a higher rating ensures enhanced fire safety in electrical applications.

IEC61386 (High & Low Temperature Test)

These tests evaluate the range of high and low temperature resistance of the conduits and fittings, ensuring they can withstand extreme conditions from -45°C to +150°C.

IEC 60754 (PH And Conductivity)

This test measures the pH value of the smoke produced during combustion to determine the presence of halogens. Halogens can be hazardous when released in enclosed spaces, so minimising their content is crucial for safety.

IEC 61386-1 (LSZH Rigid Conduit And Fittings)

This test focuses on the physical properties of LSZH rigid conduit and fittings, including compression resistance, temperature resistance, and size. These properties ensure the conduit and fittings can withstand the demanding conditions of cable management applications.

*At Greenbuild we only supply **independently tested and industry-leading materials that comply with all relevant standards.***

Section 7:

Greenbuild Current Applications

Greenbuild Supply's enthusiasm is palpable in our involvement with the **Westgate Tunnel project**, emphasising its role in sculpting the infrastructure of the future.



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Another noteworthy collaboration is with CGBU on the **Cross-River Rail project**, a state-of-the-art 10.2-kilometre rail line originating from Dutton Park.

Simultaneously, Melbourne's urban landscape is experiencing a major transformation, with Greenbuild Supply's contributing significantly to the long-awaited **Metro Tunnel construction**, a pillar of Victoria's "**Big Build**".



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Additionally, Greenbuild Supply's expertise is being channelled into the enhancement of the **Melbourne Underground Rail Line (MURL)**, reaffirming our dedication to modern, safe, and efficient urban transport solutions.



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