

QUADZERO™ NL

fire-resistant, foil faced flexible noise barrier

Quadzero™ NL is a high-performance foil faced mass-loaded vinyl noise barrier, offering superior acoustic transmission loss and upgraded fire resistance.

With a fire-resistant foil facing, Quadzero™ NL was developed by Pyrotek® to meet stringent fire safety requirements in the marine, building and transport sectors. The product achieves the highest fire ratings complying with International Marine Organisation standards for low spread of flame, as well as international building and transportation standards for heat release, toxicity and flame propagation properties.

The upgraded fire safety provided by Quadzero™ NL is offered without reducing the strength, tear resistance or flexibility offered by the Wavebar® Quadzero™ product range.

Stiff lightweight panel constructions, such as plasterboard, drywall, plywood and hollow core doors, typically have coincidence dip resonance which allows noise to transmit through a construction. The coincidence dip is dependent on the material's stiffness and thickness and occurs at the point where the sound transmitted through the structure matches the natural frequency of the panel. Quadzero™ NL shifts the coincidence dip to frequencies limiting its impact, thereby maintaining the performance of the product.

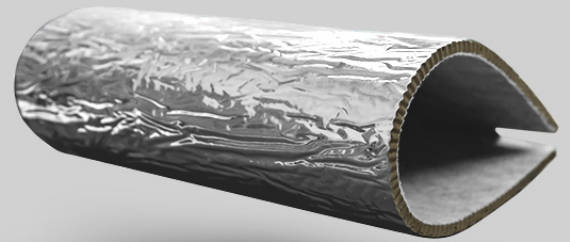
The thin, dense mass barrier reflects and absorbs the energy, resulting in the reduction of transmission of sound through walls, ceilings and floors, therefore reducing the noise generated from sources such as mechanical equipment, engine noise and electronic devices.

VOC STATEMENT

Quadzero™ products contain no ozone-depleting substances and comply with European and Australian standards for Volatile Organic Compound emissions.

SPECIFICATIONS

| | |
|-----------|--|
| Colour | Silver (Aluminium facing) White backing |
| Available | Width: 1350 mm Length (m): 5 to 10 m Weight (kg/m ²): 2, 4, 6, 8, 10 |
| | Custom sizes available depending on MOQ |



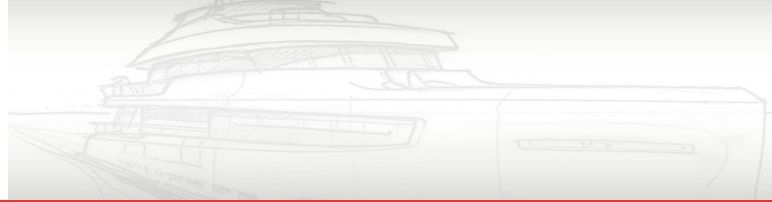
applications

- Applied in marine engine rooms & deckheads to reduce noise transmission
- Rail carriages for under floor insulation to reduce track and brake noise
- Inside cavities or over lightweight wall, ceiling and floor constructions
- Around the outside of metal air ducts to reduce noise breakout
- Wrapped around noise emitting pipes, i.e. fluid or gas pulsation in chemical, petrochemical and waste water treatment plants

features

- Complies to EN 45545-2 R1, R7, R8 HL3
- Complies to IMO FTP 2010 - low spread of flame
- Multiple methods of installation accepted by USA Coast Guard (USCG)
- Complies to BS 476 Part 6 and 7 - Class 0
- Contains no ozone depleting substances
- Free from lead, unrefined odour-producing oils and bitumen
- Easy to cut, tape and mechanically fasten into position
- Self-extinguishes upon removal of flame
- Resistant to water, oil and natural weather conditions
- Tear resistant with high tensile strength - ability to be suspended at lengths of up to 5 metres




PRODUCT SPECIFICATIONS

| Barrier weight (kg/m ²) | Thickness (mm) | Thermal conductivity k value (Wm ⁻¹ K ⁻¹) | Roll | | | Ceiling Sound Transmission Test AMA-1-II-1967 (CSTC) | Operating temp. range (°C) |
|-------------------------------------|----------------|--|------------|------------|-------------|--|--|
| | | | Width (mm) | Length (m) | Weight (kg) | | |
| 2 | 1.2 | 0.49 (Report no. 09/1182) | 1350 | 10 | 27 | 44 (Report No. A-22104-0228) | -40 to 100 (Continuous) -40 to 120 (Intermittent) |
| 4 | 2.0 | | | 5 or 10 | 27 or 54 | 48 (Report No. A-22107-0228) | |
| 6 | 3.0 | | | 5 | 41 | - | |
| 8 | 4.0 | | | 5 | 54 | 50 (Report No. A-22114-0228) | |
| 10 | 4.9 | | | 5 | 68 | - | |

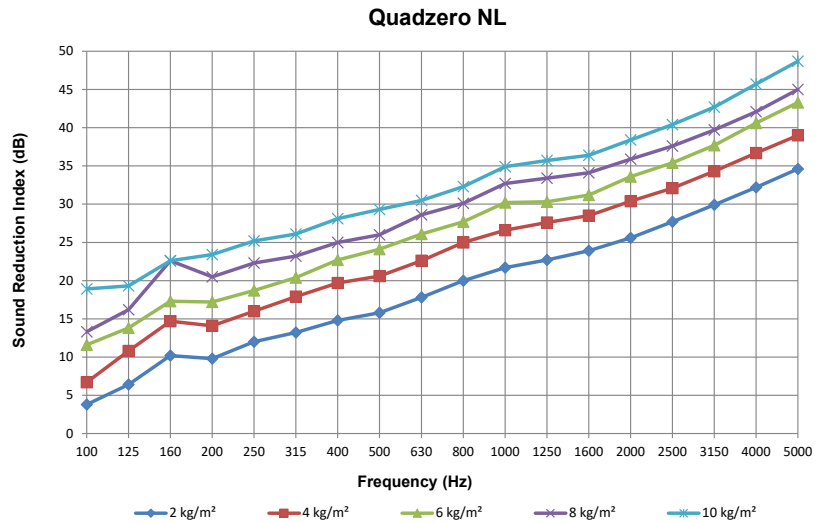
Tolerances: Length: ±1%, Width: -0/+5 mm, Thickness: ±0.5 mm, Weight: ±10%

MATERIAL PROPERTIES

| Test method | Property | Report no. | Results |
|--|---|---------------------------|---|
| IMO FTP Annex 1 Part 5 | Surface flammability | 377172 | Complies for bulkheads, walls or ceiling linings and floors for 2 kg/m ² to 8 kg/m ² products USCG Type approval granted |
| IMO FTP Annex 2 | Smoke and toxicity | 377172 | |
| MED B | EC Type Certificate (Module B) for Marine Equipment Directive | 164.112/112/WCL/MED0361TE | |
| MED D | EC Type Certificate (Module D) for Marine Equipment Directive | MEDD000015N | |
| DNV Type approval | Type approval certification | F-21140 | Complies to DNV GL Offshore Standards, SOLAS & recognised as suitable for use by Transport Canada |
| EN 45545-2 (ISO 5658 ⁻²) | Spread of flame | AJFS1803002647RS | R1, R7, R8 (HL1, HL2, HL3) |
| EN 45545-2 (ISO 5659-2: 50 kWm ⁻²) | Heat release rate by cone calorimeter | | |
| EN 45545-2 (ISO 5660-1: 50 kWm ⁻²) | Smoke generation (optical density) | | |
| ABS Product Design Approval (PDA) | ABS Design assessment | 16-HS1546128-PDA | Suitable for installation on ABS classed vessel and offshore installations |
| BS 476 Part 6 | Fire propagation | 377173, 377176 | Complies with Class 0 for 6 kg/m ² to 10 kg/m ² |
| BS 476 Part 7 | Surface spread of flame | 377175, 377178 | |
| TÜV SÜD PSB approval | Certificate of Conformity | CLS2 085834 0005 Rev. 00 | Complies |
| Qatar Civil Defence approval | Product approval | PAC15004288 | Complies as fire rated and retardant materials |
| ISO 1716 | Heat of Combustion | 348394 | 5311.6 KJ/Kg |
| GB8624 (EN 13501) | Fire classification of construction products and building materials | GN201312974 | Class B (s2, d0, t0) |
| GB/T 20284 (EN 13823) | SBI - Single burning item test for building materials and products | | |
| GB/T 8626 (ISO 11925-2) | Ignitability of building materials with direct flame impingement | | |
| GB/T 20285 | Toxic classification of fire effluents hazard for materials | | |
| ASTM E84 | Surface Burning Characteristics of Building Materials | | |
| GB/T 2406.1 & GB/T 2406.2 | Burning behaviour by oxygen index | SZML110704163 | 31.5% |
| TB/T 3138 | Specification of flame retardant materials for railway vehicle | SZML110704163 | Complies |
| FMVSS 302 | Flammability of interior materials | 02313BD2 | Complies to the requirements of US (DOT) Department of Transport for occupant compartments of motor vehicles |

ACOUSTIC PERFORMANCE

| Frequency (Hz) | 2 kg/m ² (dB) | 4 kg/m ² (dB) | 6 kg/m ² (dB) | 8 kg/m ² (dB) | 10 kg/m ² (dB) |
|----------------|--------------------------|--------------------------|--------------------------|--------------------------|---------------------------|
| 100 | 3.8 | 6.7 | 11.6 | 13.3 | 18.9 |
| 125 | 6.4 | 10.8 | 13.8 | 16.2 | 19.3 |
| 160 | 10.2 | 14.7 | 17.3 | 22.6 | 22.6 |
| 200 | 9.8 | 14.1 | 17.2 | 20.5 | 23.4 |
| 250 | 12.0 | 16.0 | 18.7 | 22.3 | 25.2 |
| 315 | 13.2 | 17.9 | 20.4 | 23.2 | 26.1 |
| 400 | 14.8 | 19.7 | 22.7 | 25.0 | 28.1 |
| 500 | 15.8 | 20.6 | 24.1 | 26.0 | 29.3 |
| 630 | 17.8 | 22.6 | 26.1 | 28.6 | 30.5 |
| 800 | 20.0 | 25.0 | 27.7 | 30.1 | 32.3 |
| 1000 | 21.7 | 26.6 | 30.2 | 32.7 | 34.9 |
| 1250 | 22.7 | 27.6 | 30.3 | 33.4 | 35.7 |
| 1600 | 23.9 | 28.5 | 31.2 | 34.1 | 36.4 |
| 2000 | 25.6 | 30.4 | 33.6 | 35.9 | 38.4 |
| 2500 | 27.7 | 32.1 | 35.4 | 37.6 | 40.4 |
| 3150 | 29.9 | 34.3 | 37.7 | 39.7 | 42.7 |
| 4000 | 32.2 | 36.7 | 40.6 | 42.1 | 45.7 |
| 5000 | 34.6 | 39.0 | 43.3 | 45.0 | 48.7 |
| Rw | 21 | 25 | 28 | 31 | 34 |
| STC | 21 | 26 | 28 | 31 | 34 |



Tested to ISO 15186-1:2003 & 10140-4:2010 at University of Canterbury, New Zealand
Report Numbers: 261d, 262d, 263d, 264d & 265d

ISO 15665 PIPE INSULATION TESTING

| Barrier Weight | Test method | System Assembly | Report no. | Results |
|--|-------------------------------|----------------------|------------------|--|
| 6 kg/m ² | ISO 15665 (Group 2 Pipe Size) | Available on request | A 3041-1E-RA-002 | ISO 15665: Class A2 & B2 NORSOK R-004: Class 6 & Class 7 |
| 6 kg/m ² & 10 kg/m ² | ISO 15665 (Group 2 Pipe Size) | Available on request | A 3041-4E-RA-002 | ISO 15665: Class B2 & C2 NORSOK R-004: Class 7 & Class 8 |

Testing was conducted using a system incorporating Wavebar®

For further information and contact details, please visit our website pyroteknc.com

Caveats: Specifications are subject to change without notice. The data in this document is typical of average values based on tests by independent laboratories or by the manufacturer and are indicative only. Materials must be tested under intended service conditions to determine their suitability for purpose. The conclusions drawn from acoustic test results are as interpreted by qualified independent testing authorities. Nothing here releases the purchaser/user from responsibility to determine the suitability of the product for their project needs. Always seek the opinion of your acoustic, mechanical and fire engineer on data presented by the manufacturer. Due to the wide variety of individual projects, Pyrotek is not responsible for differing outcomes from using their products. Pyrotek disclaims any liability for damages or consequential loss as a result of reliance solely on the information presented. No warranty is made that the use of this information or of the products, processes or equipment to which this Information Page refers will not infringe any third party's patents or rights. DISCLAIMER: This document is covered by Pyrotek standard Disclaimer, Warranty and © Copyright clauses. See pyroteknc.com/disclaimer.

