Acoustic Insulation

MAD2

2mm bituminous membrane for low frequency acoustic insulation.

EPD S-P-01923

M.A.D.2 (short for Membrana Acústica Danosa, or 'Danosa Acoustic Membrane' in English) is a 2mm thick high density bitumen modified membrane specifically designed to behave as an anti-resonant material. It is an efficient substitute for lead sheets. Between porous absorbers materials works like a panel absorbers (most efficient at absorbing low frequencies).

Presentation

- Length (cm): 1200
- Width (cm): 100
- Thickness (mm): 1.9
- m² / pallet: 336
- Surface (m²): 12
- Logistic class: (B) Products in stock, maximum availability in less than 5 days
- Product code: 610034

Technical Data

Concept	Value	Standard
Poisson coefficient	0.46	-
External fire behaviour	PND	-
Elongation at break longitudinal (%)	PND	UNE-EN 12311-1
Elongation at transverse break (%)	Estable	UNE-EN 12311-1
Estabilidad dimensional a elevadas temperaturas	Estable	EN 11007-1
Humidity resistance factor	PND	UNE-EN 1931

Concept	Value	Standard
Low temperature flexibility (ºC)	< -10	UNE-EN 1109
Mass per unit area (nominal) (kg/m²)	3.7	EN 1849-1
Young's module (kPa)	190	EN 527-2
Reaction to fire	C s3 d0	EN 13501-1
Resistance to static loading (kg)	PND	UNE-EN 12730
Resistance to root penetration	No pasa	prEN 13984
Longitudinal tensile strength (N / 5cm)	350 ± 100	-
Transverse tensile strength (N / 5cm)	250 ± 100	-
Longitudinal resistance to tearing (nail shank) (N)	125±50	-
Resistance to tearing (nail shank) (N)	125 ± 50	EN 12310-1
Transversal resistance to tearing (nail shank) (N)	125±50	-
Hazardous substances	PND	-
Thickness tolerance (%)	<5	EN 823
Mass tolerance (%)	5	EN 1849-1
Tolerance Length and Width (%)	<5	EN 822
Improvement to airborne noise on laminated gypsum board partition, ΔR (dBA)	2	EN 140-16
Improved insulation at 125 Hz (between elements resort) (dB)	6.5	EN 140-16
Insulation improvement at 125 Hz (between rigid elements) (dB)	4	EN 140-16

Addtitional Technical Data

Concept	Value	Standard
Adhesion of granules (%)	PND	UNE-EN 12039
Dimensional stability at elevated temperatures (longitudinal) (%)	PND	EN 1107-1
Dimensional stability at high temperatures (transversal) (%)	PND	-
Creep resistance at high temperatures (ºC)	>130	UN-EN 1110

Environmental Information

Concept	Value	Standard
Volatile organic compounds (COV's) (µg/m³)	50	ISO 16000-6:2006
Content of recycled raw material (%)	22	-
Recycled content afterword the consumer (%)	60	-
Manufactured in	Fontanar (Guadalajara) España	-

Standards and Certification

- The sound certifications are the result of tests in an approved laboratory.
- *For any questions about information on the tests, please consult our Technical Department.

Laboratory	Test (EN 140-3) No	Result (EN 717-1)
L.G.A.I.	97.017.995	RA= 32 dBA
DANOSA	95/MAD/004	RA= 36,4 dBA

Scope

- It is used in industrial insulation as an anti-resonant material, providing acoustic mass to galvanised steel sheets.
- It is used between rigid elements, such as gypsum plasterboard, to improve low-frequency insulation in both vertical and horizontal walls.
- Used between spring elements to increase the overall isolation of the treatment, improving significantly at low frequencies.

Advantages & Benefits

- By adhering to galvanised steel sheets, it improves the resonance of the sheet.
- By increasing the insulation at low frequencies, cavaties used can be kept to a minimal size.
- By increasing the mass of lightweight walls, a higher acoustic performance is achieved.
- It shifts the resonance frequencies of the rigid elements making the insulation stronger.
- Between insulators, it transforms acoustic energy into dynamics, improving insulation at low frequencies.
- Easy to install by stapling to the surface or using M.A.D. Self-adhesive.

Instruction for Use

An installation of the Danosa M.A.D.2 acoustic membrane shown in the following photos:

Indications and Important Recommendations

- As the ceilings are very heavy, we recommend the use of a ceiling grid system consisting of primary and secondary profiles. This system helps to spread loads if any shock absorber anchorage point

breaks. See SPD 4.3.
- The ceiling dampers are always anchored to the floor joist or a reinforcing construction element. See SPD 4.2
- The facade cladding in a building must end at the dividing wall between different users. See SPD 2.1
- In dry wall cladding for heights over 4 m, we recommend the use of elastic fasteners. See SPD 2.5
- Gypsum plasterboards must always be anchored to the galvanised steel auxiliary structure, never use plate-plate screws.
- Partition walls must be plastered with at least 1 cm. See SPD 3.
- Partition walls should not be anchored to structural elements (except for roofs in dwellings) such as pillars and facades. In order to maintain the stability of the system, the tiling element must be bonded to the internal floating partition walls.
- It is not possible to perforate with installations in the proposed solution in commercial premises located in tertiary buildings or commercial ground floors in residential buildings. See SPD 2.3 and SPD 4.4.
- Impact sound insulation must be used. See "Sound Insulation Solutions Manual" sheets from AA01-AA04.
- It should be borne in mind that this product forms part of A Sound Insulation system, so the Danosa Building Solutions Catalogue, sheets AA13 to AA15; AA23 to AA25; and AA30 to AA33, Installation of Sound Insulation, should be taken into account. Details of Singular Points (SPD), as well as the rest of the Danosa documentation.
- In the case of central heating or water intake installations, decoupling by means of a cross-linked polyethylene shell. See SPD 1.2

Handling, storage and preservation

- Consult the product safety data sheet.
- According to the EEC directives on labelling hazardous substances (GefStoffV), special labelling is not required.
- Material at room temperature can be handled without special precautions as it is stable at room temperature.
- The product, as such, is not classified as hazardous for transportation.
- Under normal conditions, the product is not hazardous.
- In application, the appropriate measures must be taken when handling machinery (mechanical fixing with staples) or for the application of adhesives via solvent.
- Temperatures above 80ºC alter the material and accelerate its degradation.
- Product components do not degrade significantly over time
- For further information, please contact our Technical Department.
- Keep away from flames and sources of heat.
- It is marketed as rolled sheets in coil form and transported loose or grouped on pallets, and is stable at room temperature and during transportation.
- In all cases, the Occupational Safety and Hygiene standards, as well as the standards of good construction practice, must be taken into account.

Notice

- The information contained in this document and any other advice provided, are given in good faith, based on DANOSA's current knowledge and experience when products are properly stored, handled and applied, in normal situations and in accordance with the recommendations of DANOSA. The information applies only to the application (s) and the product (s) to which reference is expressly made. In case of changes in the parameters of the application, or in case of a different application, consult the DANOSA Technical Service before using the DANOSA products. The information contained herein does not exonerate the responsibility of the building agents to test the products for

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