



Gasof foam

Melamine foam

Excellent soundproofing

Thermal Insulation Materials



SPIRIT UNION LIMITED LOCATED IN HONGKONG IS THE EUROPE SALES AGENT OFFICE of one of the largest China chemical enterprise –Zhongyuan Dahua Group Ltd of Henan province .

Zhongyuan Dahua Group Ltd is a China government owned enterprise with a total assets of 200 million USD and is the major melamine resin supplier in the world .

The company becomes the 2nd manufacturer worldwide of melamine foam since 2005, by developing his own technology and brought the heat insulation and soundproof material production technology of China into more advanced levels internationally .

The company has a current melamine foam production capacity of 100,000 cubic metres per year.

Zhongyuan Dahua Group Ltd follows its motto "strive for the best, create the peace", and is devoting himself to build a healthy and safe environment, creating better livings for human being.



The Product

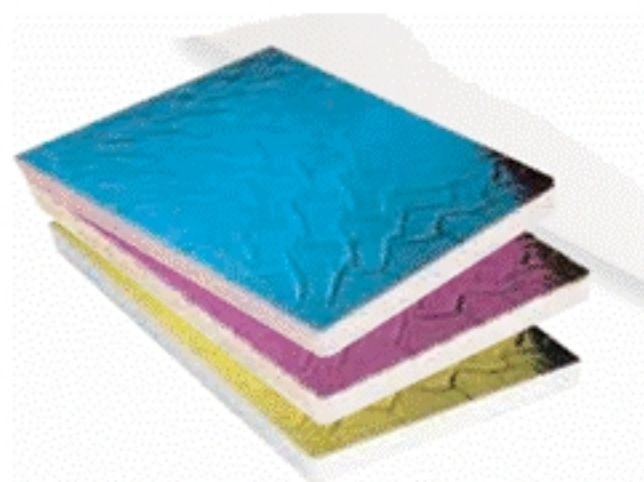
Gasof foam is a kind of low density, open-cell, flexible thermoset plastic made from melamine resin. With its outstanding flame resistance, heat insulation and soundproofing, it can be broadly applied in the area that needs sound absorbing, noise controlling and heat insulating such as construction, industry, transportation, aviation, machinery, household, digital product packaging, sanitation and cleaning.

Main characteristics of the product

- High flame resistance. It can achieve the German DIN 4102 B1 level and America's UL 94-96 V-C level in flame proofing without any flameproofing agents. After contacted with open flame, it will form a layer of coke on the flaming object and therefore obstruct the burning, no liquid, poisonous gas or smoke will be formed and it will extinguish after leaving the fire.
- High sound absorption. It is 95% open-cell, so sound waves can easily enter the inner part of the melamine foam and be used up as vibration of the fiber net. Can also effectively clear out radiations.
- Good heat insulation. The 3D fiber grid net construction of the melamine foam can effectively block the heat transmitting air movement, due to its 95% open-cells.
- High resistance of high temperature. Suitable for long-term working in 150-180 Celsius conditions. No breaking downs or deformations under 400 Celsius.
- Low density. The density of the product is 4-12kg per cubic meter, the lightest foam plastic so far.
- Safe, hygienic, and non-poisonous. It's stable formation and chemical construction has a special chemical stabilization, the melamine foam can satisfy all indoor decorations, transportations and households in the country, achieving the safe and healthy standards.

Product specifications

- Standard size: 600 x 600 x 500mm,
2500 x 1200 x 500mm
- Can be make into different shapes and colors according to customer's needs.
- Waterproof and oil proof products are also available.



The Construction

The incredible sound absorb and flame proof characteristic of Gasofam melamine foam (can reach Germany's flameproofing level DIN-4102B1 and America's UL94-96V-0 flameproofing level, without any flameproofing agents) makes it extremely suitable for construction and engineering, like decorative sound absorption boards, hanged soundproofing boards or metal frameworks, it can highly increase the sound processing ability in all buildings.



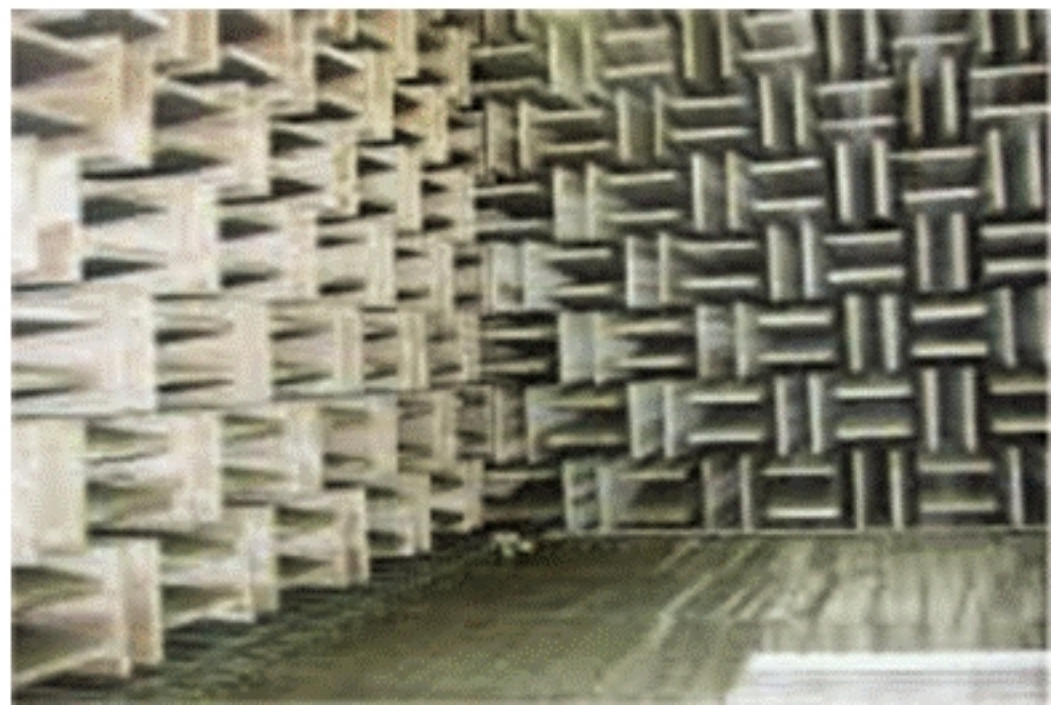


Product Application

Gasof foam

The characteristics of high sound absorption, high flame proof, low density and easy installation of Gasof foam melamine foam plastic make it the best material for stadiums, cinemas, silence rooms, engine testing platforms, air shafts and transmitting rooms.

The melamine can also be combined with gypsum, wood, metal or plastic and processed into various sound absorption products, such as soundproof walls and sound absorb doors.



Gasof foam can satisfy the need of reducing noise caused by increasing amounts of traffic in a more ideal way. It can combine with wool, fabric, metallic foils and plastic and become case parts after processed, and can be used as the soundproofing, noise reducing and heat insulating products for the traffic.



The Vehicle construction

Apart from its outstanding acoustic engineering properties, Gasof foam also has good safety, flameproof, environmentally safe and low density, it has a special value in automotive industries.

When a sound absorptive component was made by melamine combined with layers of other sound absorption materials, with relatively high bending intensity, it is suitable for the covering of car engines and gear boxes, and can reduce the amount of vehicle parts. It can become heatproof covers when combined with aluminum foil.

Cause of its flexibility, low weight and ability of sound absorption, the melamine is also used to fill in the blank spaces inside vehicle components.





The Rail Traffics

In the territory of rail traffics, the melamine foam, with its supreme sound absorption, low mass, flameproof and safety, is a perfect filling of decorations in the vehicle.

When it is used in the rail vehicles, Gasofoam melamine foam plastic performed its excellent thermal insulation (caused by its low heat conduction coefficients), and added an extra bonus to its other abilities. Therefore, it can greatly reduce the cost of rail vehicles that has an air conditioner system.

With a lower density compared to other soundproof materials, the appliance of Gasofoam melamine saved energy for the vehicle itself. In addition, the decrease of weight of the ceilings and walls of the rail vehicle increased the safety when the vehicle turns, because of a lower centre of gravity. This is particularly significant for narrow-gage railroads.



The Aerospace

The Gasofoam melamine foam 's low density and super sound absorption advantage provided it an usage in the aerospace territory. Acoustic materials, made by metallic foil-covered melamine, can be used as cladding on payload areas of launcher rockets. It can reduce acoustic pressure, and effectively protect the high sensitive goods transported, for example satellites.



The War Industry

The supreme sound absorb capability, flameproof safety, low density and pounding resistance characters of Gasofoam melamine foam allowed it to be applied on various military equipment systems. After the composite or maceration with dielectric materials, the melamine foam can work as receiving and screening materials of radios, radars and microwaves.



The Heat Preservation In Factories And Buildings

Cover pipes and equipments with melamine foam boards cut by cutting machines can withstand high temperatures (long-term working temperature about 180 Celsius, short-term working peak temperature can reach about 200 Celsius), and also satisfy the need of flame proofing. Compared to the conventional half-shell-chimney heat insulation, it can reduce energy lose and noise, easy installation as well.

The Noise Reduce In Industries

Industry areas that are polluted by noise (e.g. heavy industry factories, metal machining factories etc), after installing lightweight sound absorbing boards, can reduce the noise level back to normal. The low density of Gasof foam sound absorption boards enable them to be installed easily (e.g. steel frameworks).



The Air Conditioning Systems

Excellent sound absorption and flameproof are the main advantages of the Gasof foam melamine foam, it is suitable as a material inside air conditioners and ventilation shafts.





Product
Application

Gasofam

The Households

Due to its non-poisonous, hygienic, high absorptive, easy to cut etc characteristics, Gasotect melamine foam is highly welcome by consumers worldwide in cleaning application. Magic Eraser make of Gasotect can easily clean the impossible (e.g. permanent marker, crayon etc) without any detergent assistant, just with water only !



The Electronics

The fine flameproof, heat insulate, sound absorb, high temperature resist capabilities of Gasotect melamine foam plastic, in computers, solar energy water heaters, refrigerators and air conditioners, it can replace polystyrene and PU etc foam plastics.

Product Properties

Gasof foam

Physical Properties

Property	Unit	Test Method	Value
Bulk Density	kg/m ³	GB 6343-86	4-12
Compressive Stress	N	GB/T 10607-1989	58.86
Tensile Strength	kpa	GB/T 6344-1996	20.5
Elongation At Break	%	GB/T 6344-1996	16
Thermal Conductivity	W/m-k	GB/T 10294-1988	<0.034
Compression Set	%	GB/T 6669-2001	
%50/%23/24h			4.92
Rending Strength (Right Angle)	N/cm	GB/T 529-1999	0.72
Long-term Service Temperature	Celsius		150
Fogging Behavior	mg	GB/T 8323-1987	>90
Fire Characteristics	level	DIN 4102 UL 94-96	B1 V-O

Sound Absorption Test Report (1)

Sample tested : Gasotect melamine foam plastics

Grade : density : 5 kg/m³ ; thickness : 5 cm ; surface area : 11.4 cm²

Test standard : GB J74-83

Tested by : Acoustic test center of China Academy of Science

Frequency (Hz)	100	125	160	200	250	315	400	500	630	800
Degree Of Absorption	0.1	0.17	0.2	0.3	0.36	0.56	0.75	0.83	0.99	0.96
Frequency (Hz)	1K	1.25K	1.6K	2K	2.5K	3.15K	4K	5K	6.3K	8K
Degree Of Absorption	0.99	0.99	0.96	0.92	0.89	0.92	0.91	0.99	0.88	0.99

Sound Absorption Test Report (2)

Sample tested : Gasotect melamine foam plastics

Grade : density : #1 :5 kg/m³ , area: 100X100 cm; 30 X100 cm
2 : 7.2 kg/m³ , area: 100X100 cm; 30 X100 cm

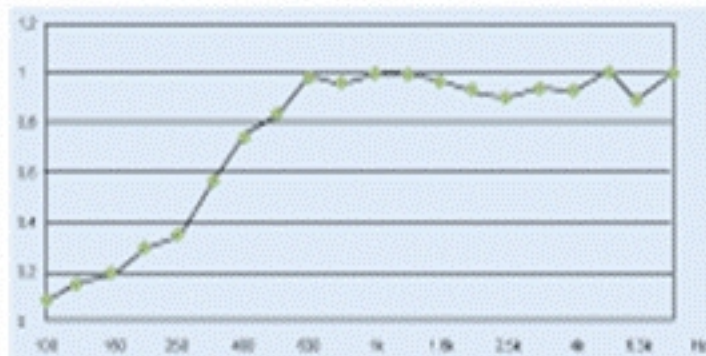
Test standard : GB J74-83

Tested by : Acoustic test center of China Academy of Science

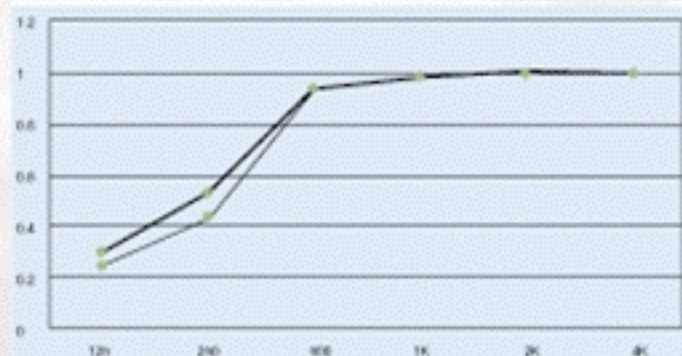
Frequency (Hz)	125	250	500	1K	2K	4K
Degree Of Absorption #1	0.25	0.44	0.94	0.98	0.995	0.997
Degree Of Absorption #2	0.30	0.54	0.94	0.985	0.995	0.998

Sound Absorption Test Report (Degrees Graphs)

(1)



(2)



Chemical Resistance

Media Group	Medium	Concentration	Evaluation
Alkalis	Ammonia Water	25%	-
	Sodium Hydroxide Solution	50%	0
Acids	Latic Acid	5%	0
	Citric Acid	5%	-
	Hydrochloric Acid	10%	-
	Nitric Acid	10%	-
	Sulfuric acid	10%	-
	Phosphoric Acid	50%	-
	Acetic Acid	90%	0
	Formic Acid	90%	-
Hydrocarbons	Light Gasoline (60-140 Celsius)		+
	Heavy Gasoline (155-185 Celsius)		+
	Paraffin Oil		+
	Methylene Chloride		+
	Toluene		+
Alcohols	Methanol		+
	Ethanol		+
	Isopropanol		+
	Butanol		+
	Glycol Monoethyl Ether		+
	Glycerin		+
Other Media	Distilled Water		0
	Brine	3.6%	0 + stable
	Butyl Acetate		+ 0 limited resistance
	Acetone		+ - unstable
	Diethyl Ether		+

These are the results of the melamine being immersed in the medium for 7 days.

Machining

The melamine foam plastic can be taken into its shape by cutting machines.

Coating, Bonding, Soaking

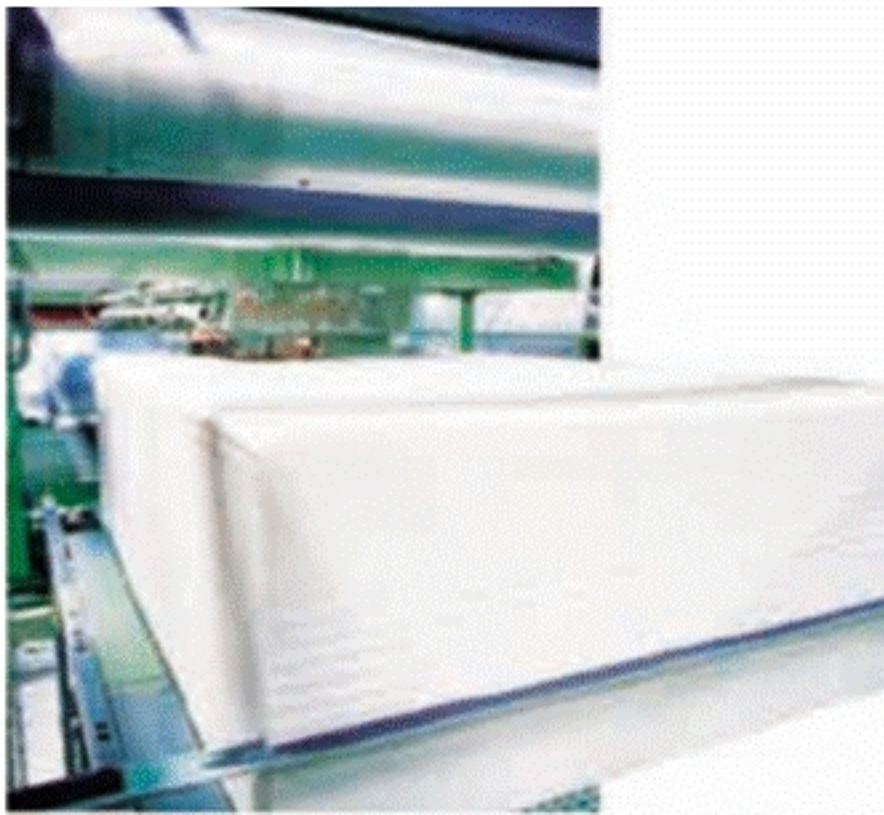
The coating for coloring and improving mechanical properties can take advantage of the small cells on the surface of the melamine, therefore it can be sprayed, rolled or troweling coated.

The normal adhesives can usually be used for the bonding of the melamine, according to its chemical resistance, solvent and reactive adhesives can also be used for melamine foam.

Before the process of thermoforming and water repelling, the melamine foam is necessary to be completely moisten. Dipping bath and spraying can be applied. To accelerate drying, a two-roll mill can be used to squash out remaining water.

Thermoforming

The parts of a melamine plastic can be produced by hot press molding. Felt, fabric, metallic foils can be used in a same process. When thermoforming, decorative patterns can also be pressed onto the melamine foam.



Notes For Processing

When machining, like sawing or washing, the dust produced in the process shall be sucked away directly where it is produced. A dust mask shall be equipped by the workers on these tasks.

EUROPE SALES AGENT :

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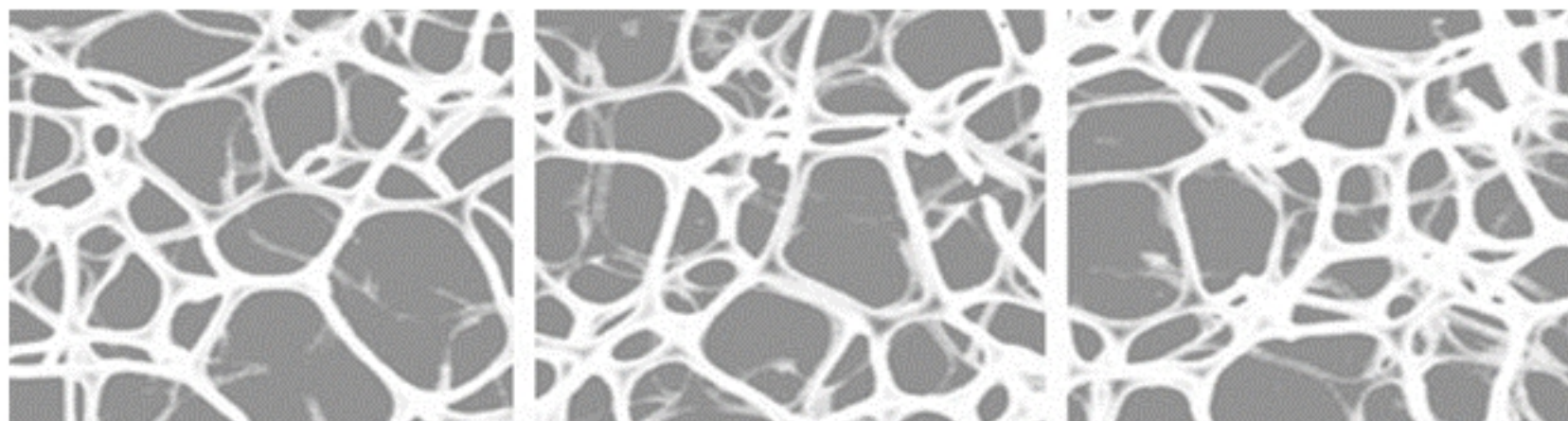
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