



- Plastic Scraps Recycling
- XPS CO₂ Extrusion Line
- XPS Insulation Boards



SAVE our Earth and Environment

We need to do something for our Earth to save the precious environment. Over the past years, our company is entrusted by local and overseas customers by providing quality products and excellent services. We have developed wide business networks all over the world. We continue to promote plastics recycling products and services as well as to protect our "Green" environment.



Background

Growing environmental awareness and reductions in available landfill capacity have prompted plastic recycling programs in most developed countries. At present, consumption of plastics per capita in developed countries is five times that of non-industrialized countries. Rapidly developing countries such as China will contribute significantly to plastics consumption and the increase of plastic wastes burden.

Our Company – Benchmarking, established in Hong Kong in 1999, specializes in the area of plastic wastes recycling. In the same year, China recycling factory was founded and set up with complete plastics recycling equipments and facilities in aligning with Hong Kong in doing plastics recycling business.

We have been actively engaging in sourcing and supplying plastic wastes for recycling from worldwide. With our know-how, experienced people and state-of-the-art technology as well as full range equipments and facilities, we are producing good quality recycled pellets to our



esteemed customers.

Apart from the plastic wastes recycling business, Benchmarking also develops and promotes "Green and Friendly Environmental" products to make our life easier and healthier.

Starting from 2011, we engage in sales and marketing of Green Earth (Beijing) Extruded Polystyrene (XPS) Board Production Line by advanced CO₂ foam technology to overseas. At the same time, we also involve in sales of XPS Board which has excellent insulation and good energy saving properties and is widely applied in building and construction industry.



Plastic Scraps Recycling



We specialize in the area of plastic wastes recycling and keep striving to develop business with good partners worldwide in a long-term relationship basis. Being a reputable and responsible company, we are committed to providing good plastics recycling products and excellent services to our customers.

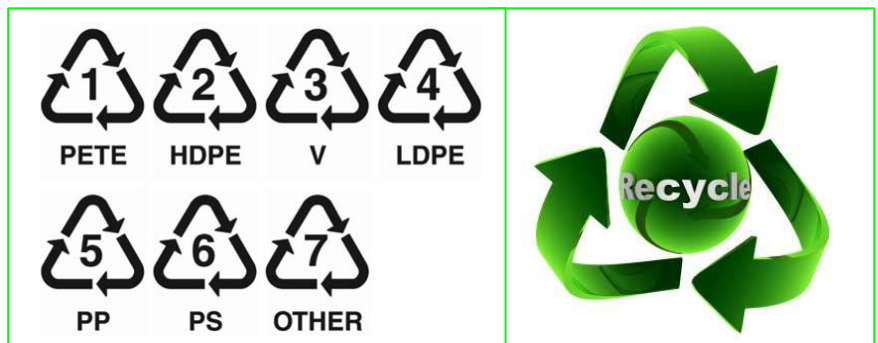
With over 20 years' working experience in different sectors of plastics industries, we have been enriched by its experienced and sophisticated staff in success of the business. The expertise knowledge of different plastics' properties and characteristics supports the sourcing and procurement of plastic waste all over the world.

In compliance with provisions of the Law of People's Republic of China on Import and Export Commodity Inspection and its rules of implementation and relevant laws and regulations to strengthen the administration over the inspection and appraisal, we have been successfully granted AQSIQ certificates for permission to import plastics waste into China.

We have built good reputation,

reliability and integrity among our business partners. We are strong in our team management in communication, information technology, logistics and finance. We have won confidence in our partners through our fast response, trustworthy and high efficiency.

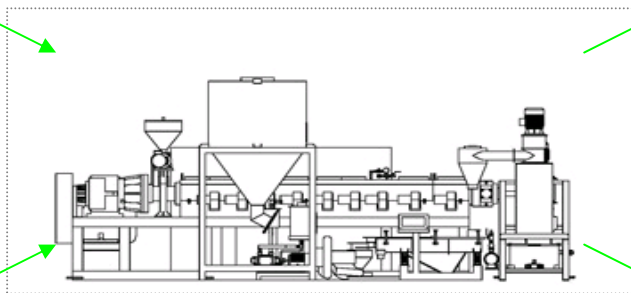
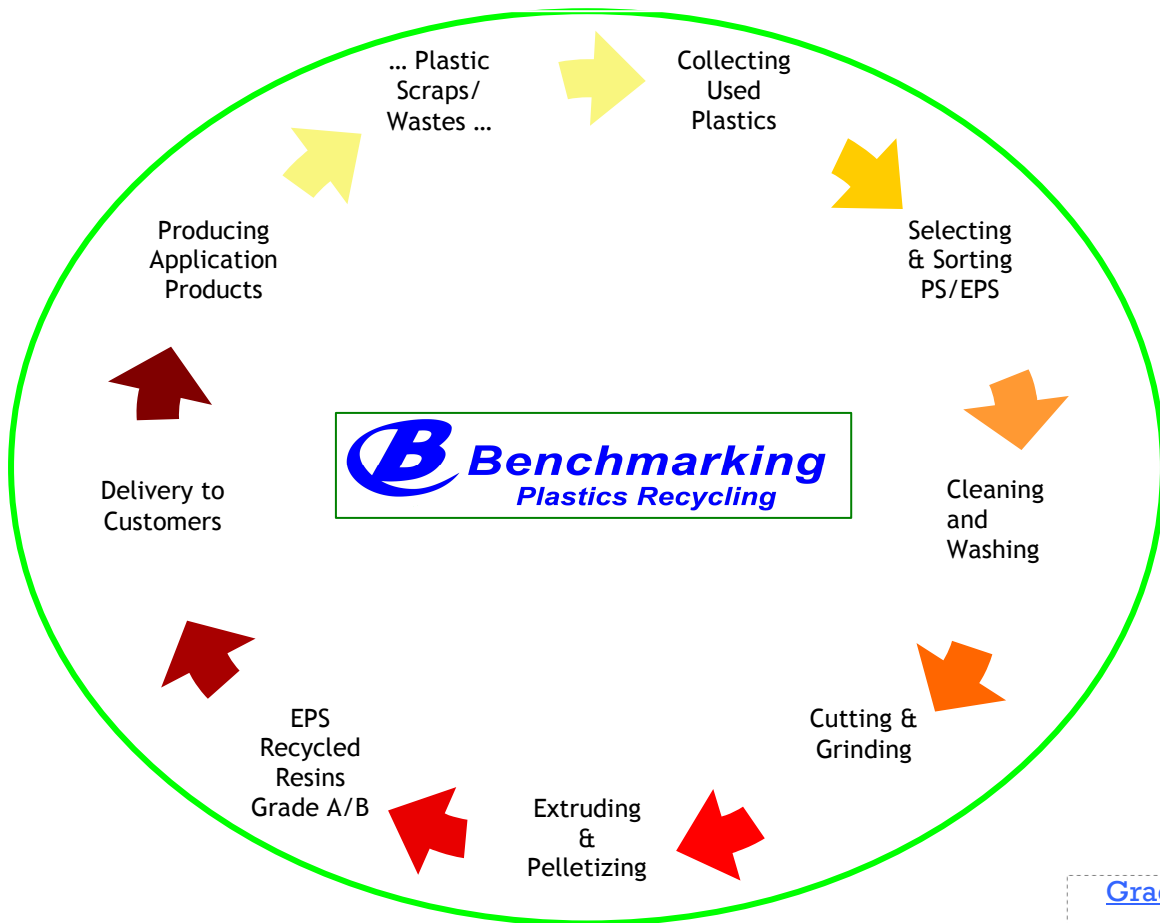
A commonly used and internationally recognized coding system (by the Society of Plastics Industry in USA, "SPI") is adopted as follows.





EPS Recycled Resins

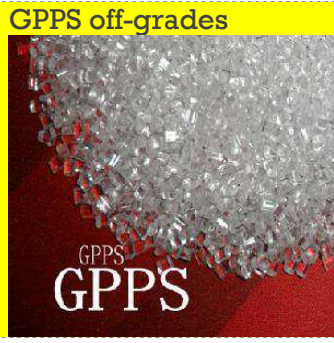
Benchmarking is an expertise in recycling PS/EPS wastes into EPS pellets and is qualified by SGS Test report in complying with the requirements of RoHS Directive 2002/95/EC. Depending upon the used plastic scrap materials, our products are classified into Grade "A" and Grade "B" for different applications specifically. Generally speaking, the EPS recycled resins are widely used in molding the housings of toys and stationery products.





Trading Plastic Scraps and Off-grades

Benchmarking is also taking an active role in buying plastic scraps and off-grades from manufacturers and producers from overseas. In connection with our buyers' network, and with our expertise knowledge and practical experience in plastics, we supply to recyclers in all regions for appropriate re-use, reprocessing and recycling. In fact, plastic recycling is the process of recovering plastic scraps or wastes and reprocessing the material into very useful products.





XPS CO₂ Extrusion Line

Green, environment protection, energy saving are always our beliefs and missions



Benchmarking is proud to introduce XPS

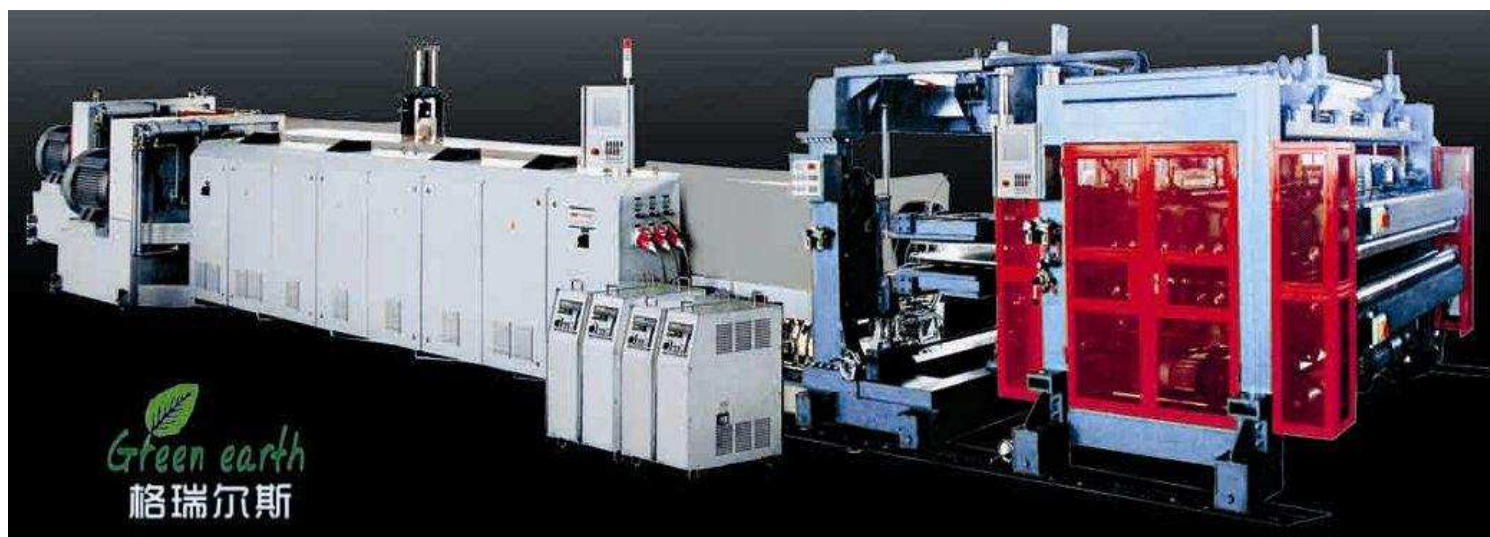
Extrusion Line with eco-friendly CO₂ foam environmental protection technology by Green Earth (Chinese Name: 格瑞尔斯)

Green Earth is committed to new technology development of plastic extrusion foaming equipment with eco-friendly foaming process in consideration of environmental protection and energy saving.

Through several years of R & D, the company already achieved CO₂ foam technology and successfully further developed CO₂ automated injection system in 2009. Patent protection on XPS Extrusion Line is granted by People's Republic of China.

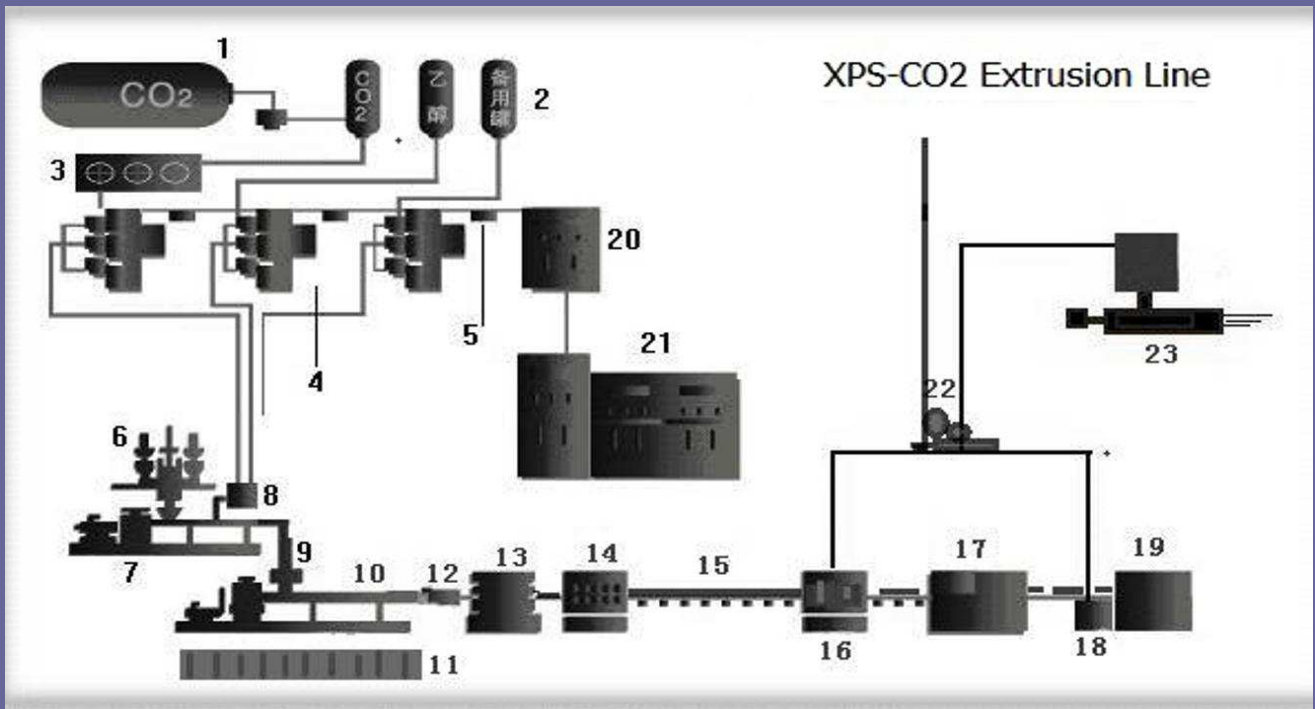
The Advantages of our XPS Extrusion Line are

- Fully Automated CO₂ Injection System
- Huge Cost Reduction by using CO₂ as blowing agent in comparison with traditional HCFCs
- Computerized Touch Screen interface control – Precise, Simple and Easy to use
- Able to boot operation without using Freon; comprehensive replacements with non-Freon materials
- Able to make XPS board free from CFC and HCFC
- Able to use 100% recycled materials such as GPPS or EPS
- Low energy consumption, low noise pollution and environment friendly
- Full range of auxiliary optional equipments enable to make all shapes of XPS board
- XPS products can be complied with international standards





CE ISO 9001:2008, ISO 14001:2004



1. CO ₂ Liquid storage tank and cryogenic transfer pump	13. Shaping platform
2. CO ₂ , Ethanol, standby or the third kind of foaming agent buffer for pressure tank	14. Multi-Roll Tractor
3. CO ₂ constant liquefaction plant	15. Cooling Bracket
4. Injection pump group workstations	16. Cross-section cutter
5. Foaming agent mass flow computing system	17. Edge milling, peeling, slotting unit
6. Multi-component weightlessness batching system	18. Automatic Pallet unit
7. Φ75-Twin Screw extrusion unit	19. Automatic Packaging unit
8. Foaming agent dynamic mixer	20. Injection System electrical control unit
9. Excessive screen changer	21. Host control unit
10. Φ200-Cooling Screw extrusion unit	22. Dust Ventilation Pipe
11. Temperature Controller	23. Concentrated Granulation unit
12. Melt static mixer	



XPS CO₂ Extrusion Line (Main Components)

Automatic Mixing and Feeding System



Φ75 Twin-Screw Extruder (primary) and Φ200 Single-Screw Extruder (cooling)



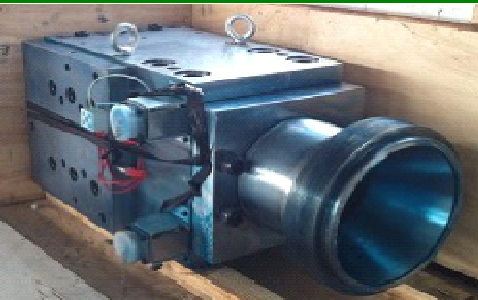
Temperature Controller



CO₂ Injection Pump Group Workstations



CO₂ Mould Unit (Above)



Downstream Peripherals

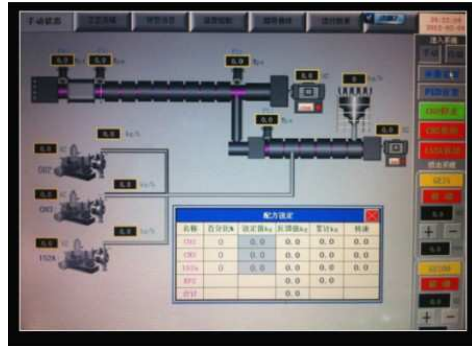


Melt Static Mixer (Below)





Our extrusion line adopts high intelligent operating system to oversee all production process and CO₂ foam injection system. The PLC system is user friendly. It is not only simple and easy to use and operate, but also very precise and accurate to control the inputs and foaming agents delivered to the production.

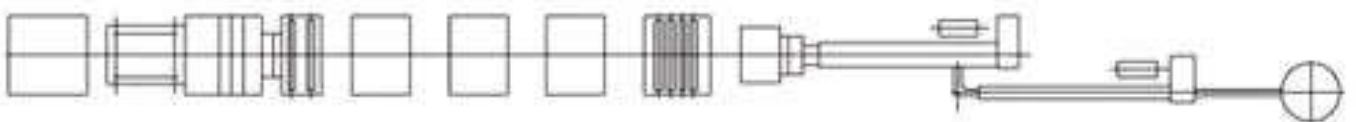


一号喂料机	二号喂料机	三号喂料机	四号喂料机	五号喂料机	六号喂料机
运行状态	运行状态	运行状态	运行状态	运行状态	运行状态
物料流量(KG)	物料流量(KG)	物料流量(KG)	物料流量(KG)	物料流量(KG)	物料流量(KG)
0.0	0.0	0.0	0.0	0.0	0.0
加料量(KG)	加料量(KG)	加料量(KG)	加料量(KG)	加料量(KG)	加料量(KG)
0.0	0.0	0.0	0.0	0.0	0.0
加料时间(min)	加料时间(min)	加料时间(min)	加料时间(min)	加料时间(min)	加料时间(min)
0	0	0	0	0	0
默认停止时间(min)	默认停止时间(min)	默认停止时间(min)	默认停止时间(min)	默认停止时间(min)	默认停止时间(min)
0	0	0	0	0	0
启动选择	启动选择	启动选择	启动选择	启动选择	启动选择
禁止启动	禁止启动	禁止启动	禁止启动	禁止启动	禁止启动



Specifications

Model		Standard GE/CO2-72-150		Advanced GE/CO2-75-200	
Primary Extruder	Unit	Parallel/Double Screw		Parallel/Double Screw	
Secondary Extruder	Unit	Single Screw		Single Screw	
Screw Diameters	mm	72	150	75	200
L/D Ratio	L/D	36:1	34:1	40:1	40:1
Motor Power	kW	110	75	132	110
Capacity	kg/h	400		700	
Product	Width	600~1200		600~1200	
	Thickness	20~100		20~100	
	Length	900~3000		900~3000	
Density	kg/m ³	32~35		32~35	
Total Power	kW	250		315	
Blowing Agent	-	CO ₂ , HCFC, HFC		CO ₂ , HCFC, HFC	
Dimension (LxWxH)	mm	65000 x 8000 x 5000		85000 x 8000 x 5000	
Total Weight	T	30		50	





XPS Insulation Boards



Benchmarking is also handling exports of Extruded polystyrene (XPS) foam insulation board made by Wuzhou™, one of the best for both general and specialized applications. Its excellent resistance to moisture, imperviousness to rot, mildew and corrosion, controlled compressive strength and ability to maintain insulating power make XPS foam a premiere insulating material for commercial, industrial and residential structures, as well as for critical civil engineering uses.

The closed-cell structure and lack of voids in XPS helps the foam to resist moisture penetration better than other types of insulating materials. In fact, when it comes to resisting water moisture absorption, there is no another insulation product that can perform as well without the use of a facer or laminate.

Furthermore, our XPS board is complied with international flammability standard up to B1 or above.

With our sophisticated trading and logistic experience, we are able to provide one-stop and the best solution to our customers.

PROPERTIES

strong intensity

airtight

ageing resistance

good dimensional stability

low cost

low water absorption

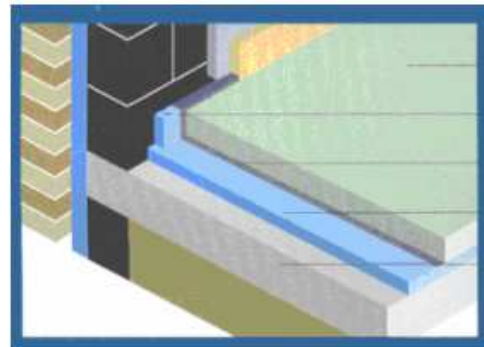
light material

higher compressive strength

anticorrosion

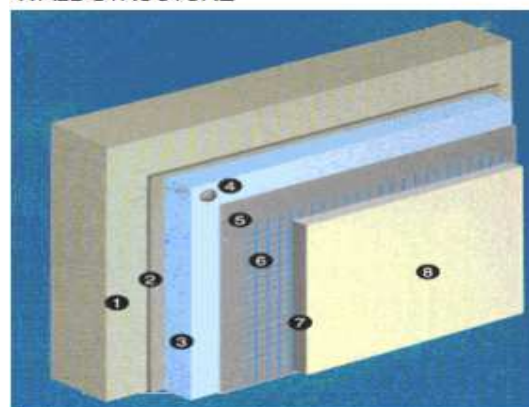
EXAMPLES OF XPS BOARD APPLICATION

BUILDING GROUND STRUCTURE

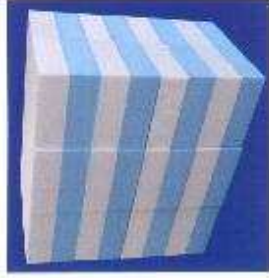


- Concrete floor or brick, natural marble floor
- XPS board
- Vapor separation layer
- XPS board
- Bed course of sand and stone






WALL STRUCTURE



- 1 Wall body
- 2 Binding mortar
- 3 XPS board
- 4 Fastener
- 5 Plaster layer
- 6 Net cloth
- 7 Plaster layer
- 8 Decoration layer



Item	Unit	Test Method	Physical Properties										
			With Skin					Without Skin					
			X150	X200	X250	X300	X350	X400	X450	X500	W200	W300	
Compressive Strength	kPa	GBT 8813-1988 (idt ISO 844:1978)	≥150	≥200	≥250	≥300	≥350	≥400	≥450	≥500	≥200	≥300	
Water Absorption (by Submersion 96h)	%	GBT 8810-1988 (eqv ISO 2896:1986)	≤1.5					≤1.0			≤2.0	≤1.5	
Water Vapor Permeability 23°C ± 1% , RH50% ± 5%	ng/(m.s.Pa)	QBT 2411-1988	≤3.5			≤3.0			≤2.0		≤3.5	≤3.0	
Thermal Resistance (Width:25mm) at 10°C at 25°C	(m ² .K)/W	GBT 10294/10295-1988 (idt ISO/DIS 8301:1987/8302:1986)									≥0.76	≥0.83	
											≥0.71	≥0.78	
Thermal Conductivity at 10°C at 25°C	W/(m.k)	GBT 4132-1996 (neq ISO 7345:1987)			≤0.028						≤0.033	≤0.030	
					≤0.030						≤0.035	≤0.032	
Dimensional Stability 70°C ± <2°, 48h	%	GBT 8811-1988 (eqv ISO 2796:1980)	≤2.0			≤1.5			≤1.0		≤2.0	≤1.5	
Flammability		GBT 8626-1988 (eqv DIN 4102-1)											≥B1
Width			Thickness										
600 900 1200			20 25 30 40 50 75 100 150										

	Excellent Insulation performance and Good in building construction with thermal conductivity just at $\leq 0.028\text{W/m.K}$
	Carbon dioxide (CO ₂) foam technology to replace the traditional Freon (CFC and HCFC) gases, the protection of the ozone layer, more environmental protection and energy saving, non-radioactive or volatile substances, safety and environmental protection does not contain formaldehyde, indoor and outdoor use
	High compressive strength up to 800kPa more with perfect stress resistance and impact resistance; Lightweight insulation material, inherent mechanical strength to enable it to withstand higher load pressure on the ground and underground; Sidewall provide thermal insulation and structure as one of the solutions
	Combined fire rating of the domestic high-end retardant formulations CO ₂ foaming process to produce oxygen index ≥ 32 flame retardant B1 grade extruded board, increasing the fire safety performance of the extruded plate.
	Very low water absorption ($\leq 0.29\%$) and excellent hydrophobic, moisture-proof and impermeable performance



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