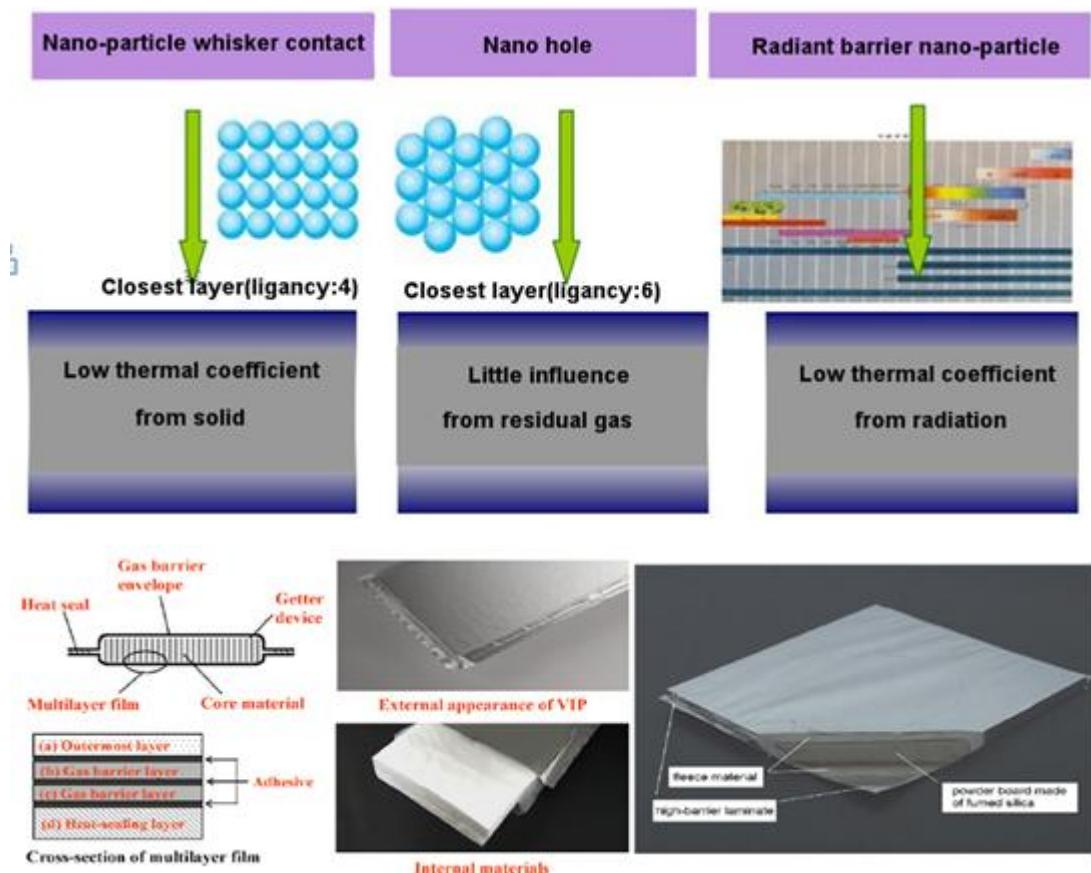


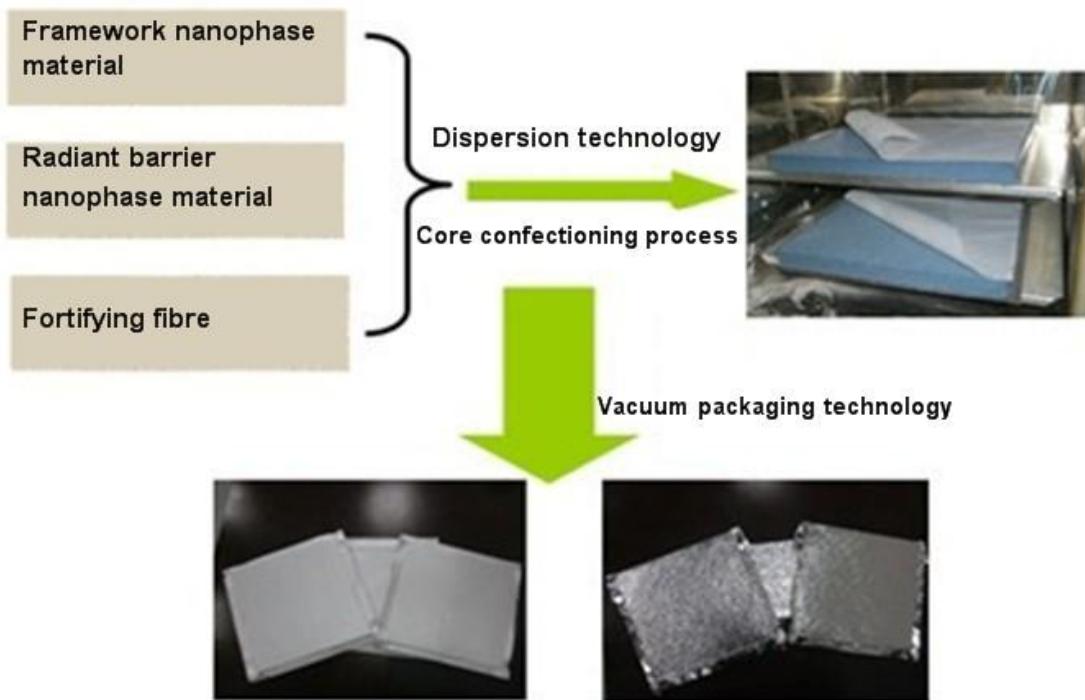
# VIP vacuum insulation panel

The newest and advanced insulation material **developed in 2012**, thermal conductivity can be **0.0045W/m.k**, thickness is **7-20mm**, save much cost and enhance efficiency immensely, harmlessly used **50 years without ODS and glass fiber!**

**Outline:** VIP vacuum insulation panel is composed made of insulated lightweight composite nanometer core and vacuum protection surface under vacuum state, material is with special structure, composed of three parts: core insulating material, air getter material and high barrier functional composite film. It can effectively avoid heat transference, that makes thermal coefficient low to 0.005W/m.k, meantime it does not have any ODS things, with excellent environmental protection energy-efficient performance. It already is the most advanced efficient heat preservation material in the world.

## Theory:





#### Feature:

1. Main material is nanometer silicon dioxide, without any ODS and harmful things (better than fiberglass insulation material), to the utmost extent to enhance inner vacuum, insulate the heat transference through air convection, then reduce the thermal coefficient.
2. To reduce the heat coming and lost heat by heat transference by core material and the high barrier film is composed of aluminum foil, which can reflect heat radiation.
3. Very low thermal coefficient:  $0.0045\text{W/m.k}$
4. Ultralight weight: below 4kg as standard thickness per square meter, save freight cost
5. Ultra-thin application: thickness can be 7-20mm, used for comprehensive field and save much using space. The 10mm head preservation effect is the same as 10cm ordinary insulation material, save much room than normal material
6. Lifetime could be 50 years old.
7. Easy to construction, only need to paste it.
8. Curved, suitable for some special places needing curved.
9. Solution and customization are supported by more than 30 academicians and engineers from China Academic of Science

**Specification:**

<b>Color</b>	Silver
<b>Material</b>	Nanometer silicon dioxide(SiO <sub>2</sub> )
<b>Size(Customizable)</b>	Standard: 500mmX450mm or 600mmX400mm
<b>Thermal coefficient</b>	≤0.0045w/m.k
<b>Density</b>	110-180kg/cu.m
<b>Thickness</b>	7-20mm
<b>Thermal stability</b>	-50°C~70°C
<b>Wet fastness</b>	0%~60%
<b>Length tolerance</b>	±2mm
<b>Width tolerance</b>	±2mm0/+1.5mm
<b>Thickness tolerance</b>	0/+1.5mm
<b>Diagonal tolerance</b>	±2mm
<b>Compressive strength</b>	Not collapse, distortion<10%,(under 150KPa)
<b>Fire-protection rating</b>	Grade A
<b>Lifetime</b>	50 years

**Application field**

**Construction heat preservation field:**

(HVAC, duct, roof, wall, residential, cold/heat/thermal insulation etc)



- 1.Low thermal coefficient make excellent heat preservation function.
- 2.It is inorganic thermal insulating material, fire-protection rating is A.
- 3..Mass area ratio is very low, only 4kg per square meter when on wall, means 1/4 of ceramic, and it's very safe, not easy to drop off. Widely used in exterior wall, interior wall, rooting decoration etc.
- 4.Convenient construction, easily tilling, save project time and cost.
- 5.Innoxious, pollution-free, green and environmental protection, long lifetime.
- 6.Customized to different shape and size.
- 7.Customized to incorporate application exterior wall, interior wall, rooting decoration etc

**Refrigeration field:**

(Refrigerator, refrigerated lorry, Insulated transport boxes, refrigerated container, expedition moving house, Insulation equipment and fittings, water heater , electric appliances etc.)



**For example:** energy consumption is very important for 24 hours working refrigerator, it's easy and efficient to reduce energy consumption by using insulation material. When we use composited material made of vacuum insulation material and urethane foam on refrigerator, not only reduce energy but also reduce the thickness of thermal insulating layer which can enlarge the effective using space. For 242L refrigerator, after replaced of vacuum insulation panel, thermal insulating layer thickness is reduced to 3.5cm, and volume is enlarged to 260L.

### Cryogenic storage container field:

**Use PU foam**, container exterior size is 57cmX50cmX50cm, thermal insulating layer thickness is 3.8cm, loading 21.8kg refrigerant, heat preservation period is 120H.

**Use VIP(vacuum insulation panel)**, exterior size is 33cmX46cmX28cm, thermal insulating layer thickness is 2.5cm, loading 7kg refrigerant, heat preservation period is 200H.

Container size reduced by 70%, refrigerant reduced by 68%, but heat preservation period extended by 66%, save the freight cost also.

### Comparison with other materials:

Material name	VIP	EPS	XPS	Polyurethane	Rockwool	Inorganic thermal insulating board
Thermal coefficient (w/m·k)	≤0.0045	≤0.041	≤0.030	≤0.024	≤0.040	≤0.08
Fire-protection rating	A	B2	B2	B2	A	A

