

An innovative, Eco-friendly material

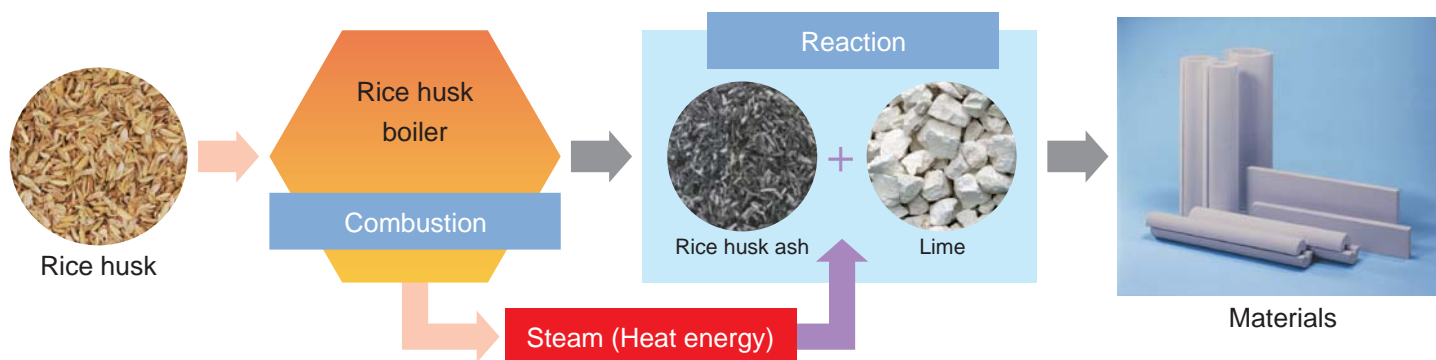
Calcium silicate thermal insulation material
Equivalent to JIS A 9510 Type. 1-15 product

DAIPALITE-E

DAIPALITE-E is a calcium silicate thermal insulation material which is pre-formed for pipe and block section and used for facilities. DAIPALITE-E is inorganic, asbestos free and noncombustible. DAIPALITE-E is supplied to various industrial fields, such as refinery plants, power plants, petrochemical plants and others.

Environment-friendly production process

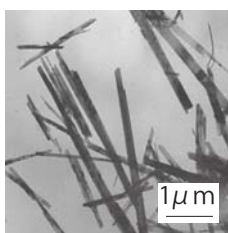
JIC is the first and the only one that succeeded in inventing the production process using rice husk. Rice husk is used as energies for reaction of raw materials and drying formed products. The rice husk ash is used for as a raw material instead of Silica rock. This unique process is certificated as an environment-conscious business by Viet Nam Government. The process contributes to reduce 4,200 ton CO₂/ year.



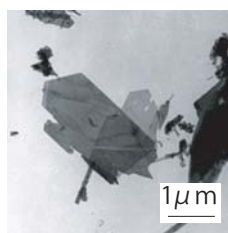
Efficient and Economical product

DAIPALITE-E is composed of Xonotlite Crystal, which makes the heat performance of the product superior to other calcium silicate products.

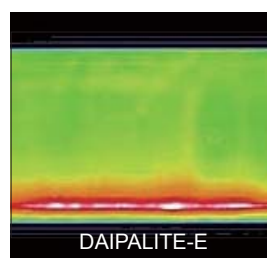
Xonotlite crystal
(DAIPALITE-E)



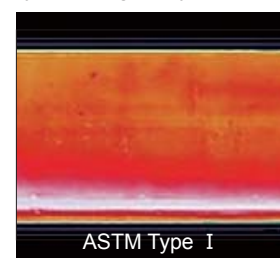
Tobermorite crystal
(Conventional product)



Surface temperature by thermography



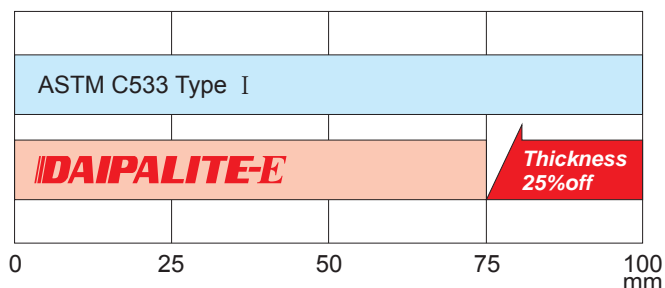
Surface Temp. 44.8°C
Heat loss: 160W/m



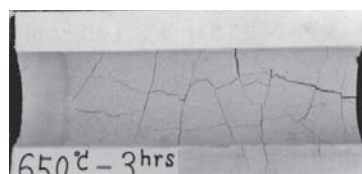
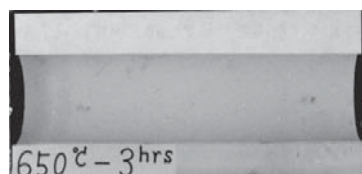
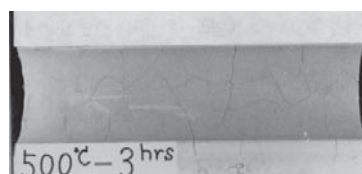
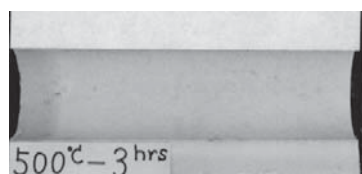
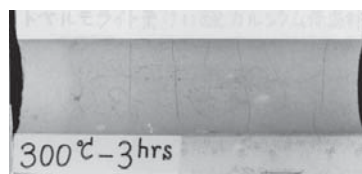
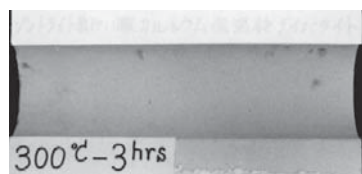
Surface Temp. 48.5°C
Heat loss: 190W/m

Conditions
Pipe inside temp.: 300°C Pipe outer diameter: 114mm
Thermal insulation thickness: 50mm

Thickness as same heat loss



Conditions:
Outside air temperature: 25°C
Heat loss: Same (less than 123W/m)
Pipe inside temp.: 300°C
Pipe outer diameter: 114mm

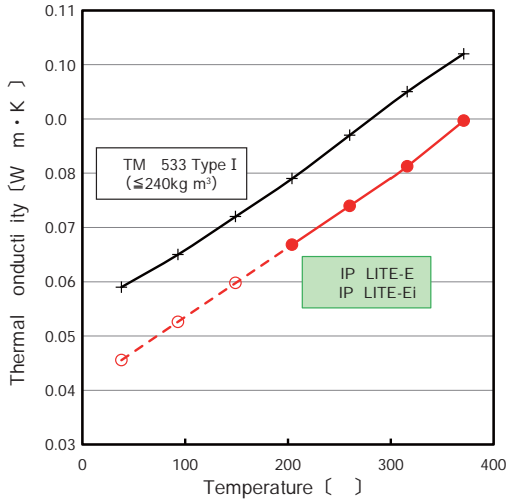


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Calcium silicate thermal insulation material
Equivalent to JIS A 9510 Type. 1-15 product

DAIPALITE-E

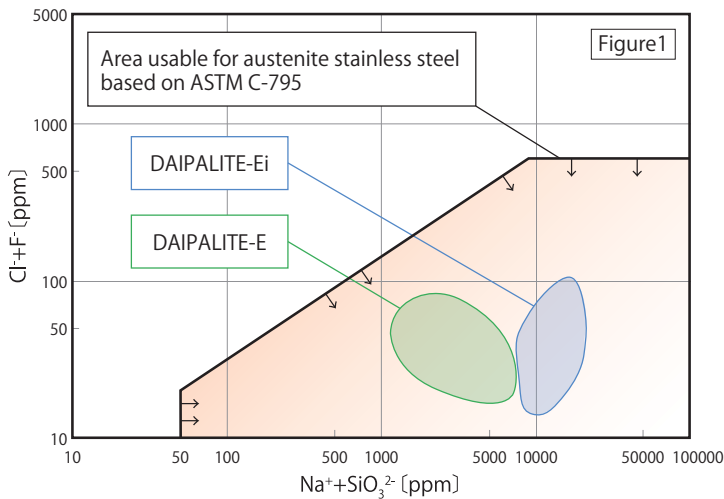
Thermal conductivity



Temperature [°C]		38	93	149	204	260	316	371
Thermal conductivity W/(m·K)	Requirement	.059	.065	.072	.079	.087	.095	.102
	DAIPALITE-E	.046*	.053*	.060*	.067	.074	.081	.090

* It is the reference value that substitutes target temperature for a temperature equation of regression to show to the Thermal Conductivity (200 ≤ θ ≤ 300) of the right chart and calculated.

Stress corrosion cracking inhibition : Passed in test per ASTM C-795



These calcium silicate materials have performance to satisfy ASTM standards as a thermal insulation material in contact with austenitic stainless steel.

Standard dimension [mm]

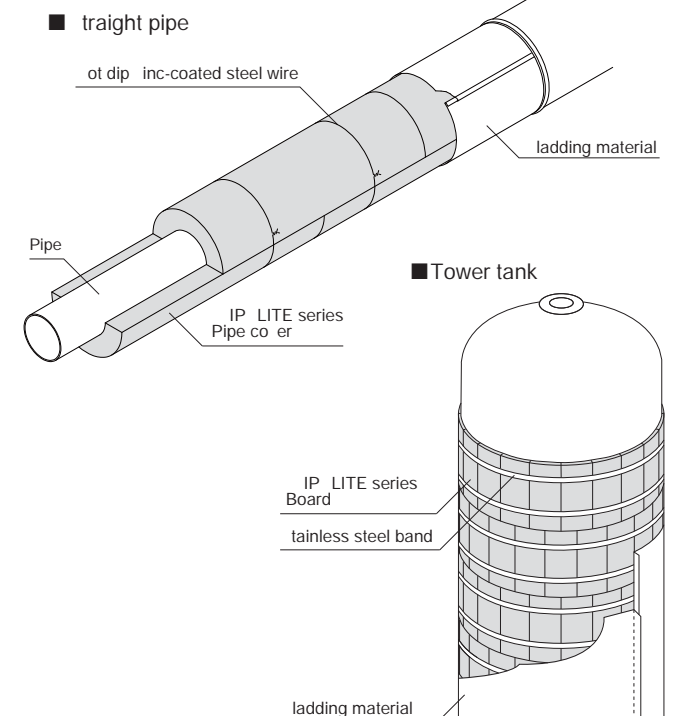
	Internal Diameter	Thickness	Width	Length
Pipe cover	22 ~ 610	25* 30 40 50	—	914
Board	—	65 75	303×914 150×914	

* The 25mm thickness is for board only.

Standard physical properties (reference values)

Apparent Density	155kg/m³ or less
Heating Linear Shrinkage	2.0% max.
Maximum Service Temperature	1000°C
Thermal Conductivity W/(m·K) (θ : temperature [°C])	$[200 \leq \theta \leq 300]$ $\lambda = 0.0407 + 0.000128 \cdot \theta$ $[300 < \theta \leq 600]$ $\lambda = 0.0555 + 2.05 \times 10^{-5} \cdot \theta + 1.93 \times 10^{-7} \cdot \theta^2$

Installation image



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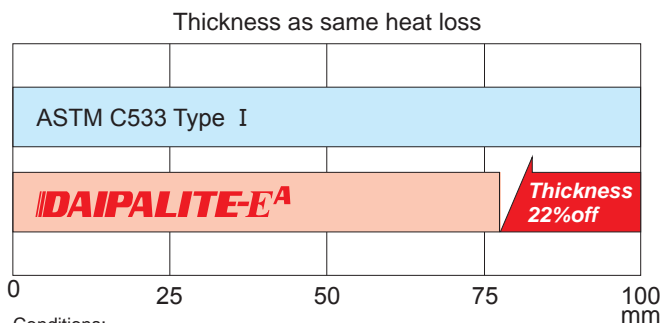
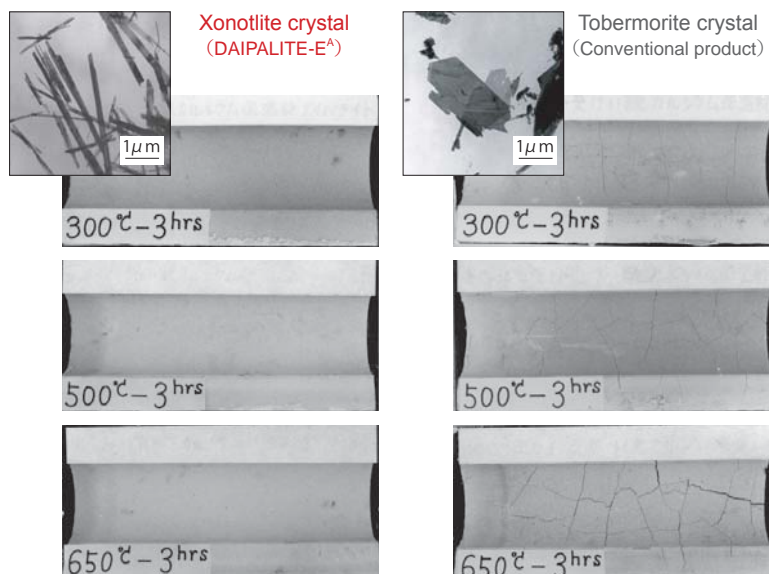
Calcium silicate thermal insulation material
ASTM C 533 Type I product

DAIPALITE-E^A

DAIPALITE-E^A is a calcium silicate thermal insulation material which is pre-formed for pipe and block section and used for facilities. DAIPALITE-E^A is inorganic, asbestos free and noncombustible. DAIPALITE-E^A is supplied to various industrial fields, such as refinery plants, power plants, petrochemical plants and others.

Very lightweight and high heat resistant performance

- The density is 170kg/m³.
- Composed of Xonotlite crystal, which makes the heat performance of the product superior to other calcium silicate products and the maximum service temperature is 1000°C .

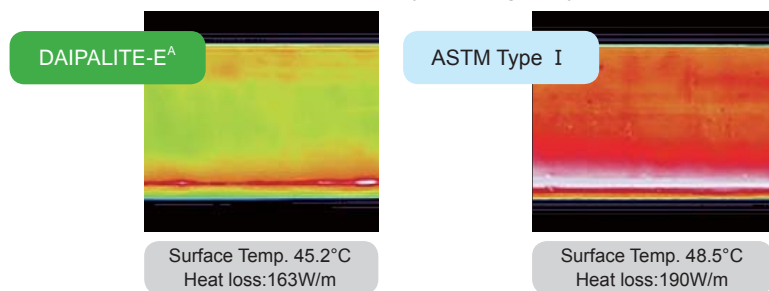


Conditions:
Outside air temperature: 25°C
Heat loss: Same (less than 123W/m)
Pipe inside temp.: 300°C
Pipe outer diameter: 114mm

Standard dimensions [mm]

	Internal Diameter	Thickness	Width	Length
Pipe cover	22 ~ 610	25 30 40 50 65 75	—	914
Board	—		303×914 150×914	

Surface temperature by thermography



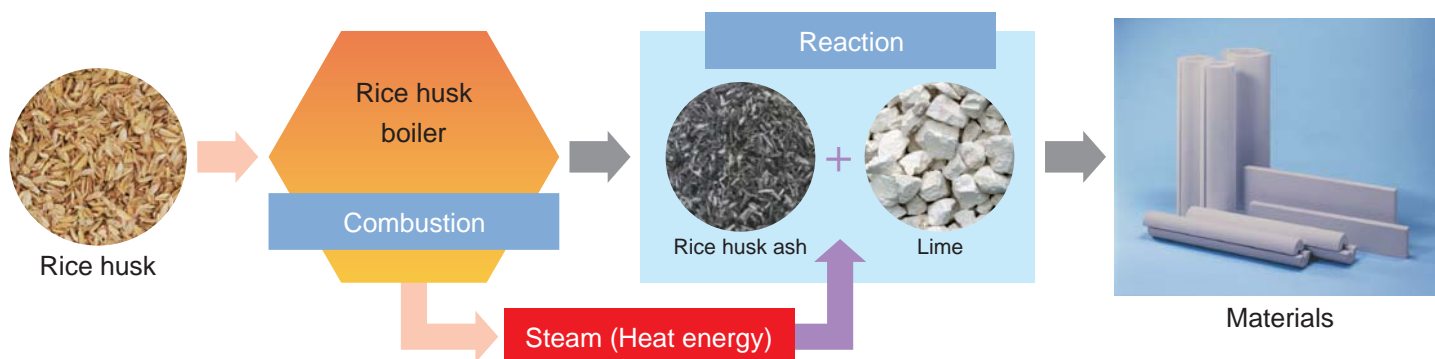
Conditions
Pipe inside temp.: 300°C Pipe outer diameter: 114mm
Thermal insulation thickness: 50mm

Standard physical properties (reference values)

Apparent Density	170kg/m ³
Heating Linear Shrinkage	2.0% max.
Maximum Service Temperature	1000°C
Thermal Conductivity W/(m·K) (θ : temperature [°C])	Pipe cover $\lambda = 0.0489 + 7.885 \times 10^{-5} \cdot \theta + 2.032 \times 10^{-10} \cdot \theta^3$ Board $\lambda = 0.0516 + 7.240 \times 10^{-5} \cdot \theta + 1.884 \times 10^{-10} \cdot \theta^3$

Environment-friendly production process

JIC is the first and the only one that succeeded in inventing the production process using rice husk. Rice husk is used as energies for reaction of raw materials and drying formed products. The rice husk ash is used for as a raw material instead of Silica rock. This unique process is certificated as an environment-conscious business by Viet Nam Government. The process contributes to reduce 4,200 ton CO₂/ year.

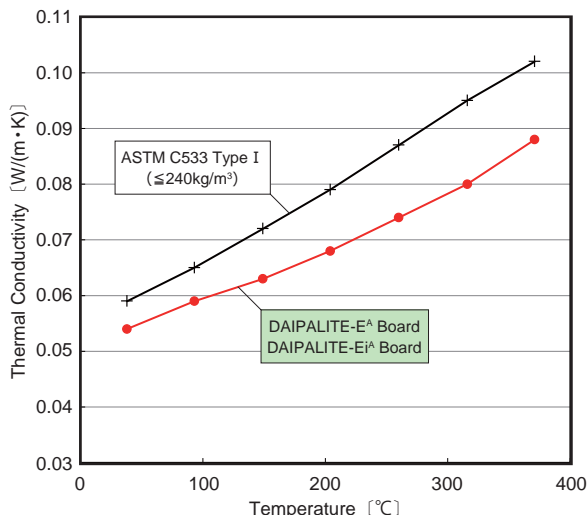


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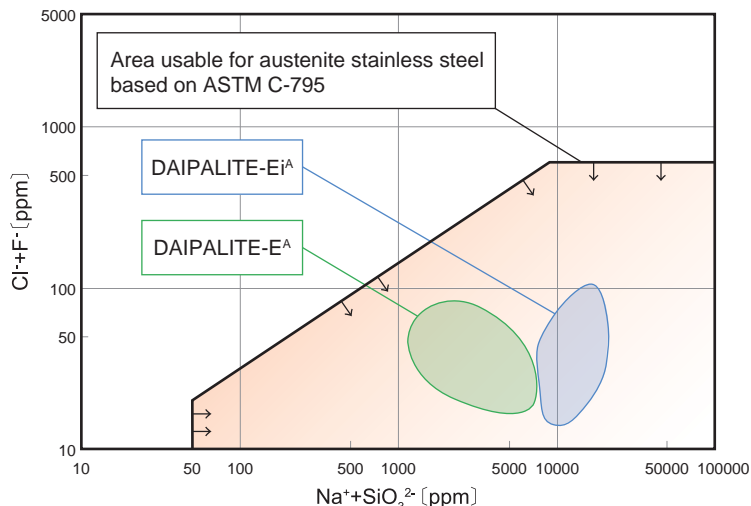
Calcium silicate thermal insulation material
ASTM C 533 Type I product

DAIPALITE-E^A

Thermal conductivity



Stress corrosion cracking inhibition: Passed in test per ASTM C-795



Temperature [°C]		38	93	149	204	260	316	371
DAIPALITE-E ^A Thermal conductivity W/(m·K)	Requirement	.059	.065	.072	.079	.087	.095	.102
	Pipe cover	.052	.056	.061	.067	.073	.080	.088
	Board/GHP	.054	.059	.063	.068	.074	.080	.088

These calcium silicate materials have performance to satisfy ASTM standards as a thermal insulation material in contact with austenitic stainless steel.

Technical Data

Property	Test Methods	ASTM C533 Requirement								Test Results
Density (Dry) Average	ASTM C302	≤ 240 kg/m ³								Pass
Flexural Strength	ASTM C203	≥ 344 kPa (50 psi)								Pass
Compressive Strength	ASTM C165	≥ 688 kPa (100 psi)								Pass
Abrasion Resistance Weight Loss by Tumbling	ASTM C421	After the first 10 min <20%, After the second 10min <40%								Pass
Linear Shrinkage after Heat Soaking	ASTM C356	Less than 2% after 24hr, Soaking period at 650°C								Pass
Hot Surface Performance of High Temperature	ASTM C411	Warpage ≤ 6mm Cracking : no cracks completely through the insulation thickness. Surface cracks on hot face are acceptable								Pass
Maximum Service Temperature	ASTM C447	649°C (1200°F)								Pass
Surface Burning Characteristics	ASTM E84	Flame spread - 0, Smoke Developed-0								Pass
Apparent Thermal Conductivity	ASTM C177/GHP ASTM C518/HFM ASTM C335/Pipe cover ASTM C1045	Temp. [°C]	38	93	149	204	260	316	371	Pass
		λ W/(m·K)	≤ .059	≤ .065	≤ .072	≤ .079	≤ .087	≤ .095	≤ .102	Pass
Stress Corrosion Performance (Austenitic Stainless Steel)	ASTM C795 ASTM C692 ASTM C871	① Na ⁺ + SiO ₃ ²⁻ ions : ≥ 50ppm ② Acceptable range of Cl ⁻ + F ⁻ and Na ⁺ + SiO ₃ ²⁻ ③ pH ≤ 12.5 (at 25°C) ④ The stress corrosion test (C-692) must be passed.								Pass
Moisture Content	ASTM C1616	≤ 20%								Pass
Combustibility	ASTM E136	Non-Combustible								Pass
Corrosion* (DAIPALITE-Ei ^A)	ASTM C1617	Mass Loss Corrosion Rate (MLCR) ≤ DI (The MLCR of Type 1 materials, when tested with extracted solutions, shall be equal to or less than that determined when tested with DI Water)								Pass

* Water-repellent material



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