

EnigMAT — Material Comparison vs Traditional Insulation (US & Canada, June 2026)

Source: Pure Organica Corp. | Fiberglass R-13: HD \$0.70–\$0.86/sqft, Lowe's \$0.80/sqft (Jun 2026) | Rock Wool R-15: HD & Lowe's \$1.42/sqft (Jun 2026) | EPS: HD \$0.42–\$0.87/sqft, Lowe's \$0.73/sqft | Installation costs: US market estimates 2026 | † EPS requires mandatory thermal/ignition barrier (+\$3–5/m²) | TCO = Material + Installation + HVAC × (1–savings%) × 10 yrs | HVAC base: \$1,200/yr per 100m² */* Energy savings: reference home 100m², HVAC base \$2,400/yr (60% heating / 40% cooling, average US climate).

Criterion	EnigMAT	Fiberglass	Rock Wool	BioPCM	PureTemp	BASF Micronal	Rubitherm	EPS
Type	Dynamic (inorganic PCM)	Static	Static	Dynamic (organic PCM)	Dynamic (organic PCM)	Semi-dynamic	Periodic	Static (rigid)
Required thickness	1 cm ✓	10–15 cm	10–15 cm	2–4 cm	2–5 cm	5–10 cm	3–5 cm	5–10 cm
Thermal peak management	✓	✗	✗	✓	✓	~	✓	✗
HVAC savings	40–60%	20–30%	25–35%	25–40%	25–40%	15–25%	25–40%	15–20%
Fire resistance	✓ Class A (E84: FS 5 / SD 5)	~ B/C	✓ A1	✗ Org.	✗ Org.	✓	✗ Org.	✗ NFPA
Moisture resistance	✓	✗	✓	~	✗	✓	~	✓
Cyclic stability	>10,000	—	—	~5,000	~3–5,000	~5,000	~3,000	—
Warranty	✓ 20 years	~10 years	~10–15 years	~10 years	~5–10 years	~10 years	~5 years	~5–10 years
Maintenance	✓ Zero	Periodic	Periodic	Periodic	Periodic	Periodic	Periodic	Periodic
Material cost (\$/sqft) HD / Lowe's	\$3.00/sqft	HD \$0.70–\$0.86 Lowe's \$0.80	HD \$1.42 Lowe's \$1.42	~\$2–4.6/sqft (M-27–M-91 wholesale)	~\$249/sqft (retail sample)	~\$3–9/sqft (finished board)	~\$7.4–13.9/sqft (macro-encaps. system)	HD \$0.42–\$0.87 Lowe's \$0.73
Installation cost (\$/sqft) US market estimate	\$0.50/sqft	\$0.50–\$1.50	\$1.00–\$2.00	~\$1–2/sqft (est. install)	~\$1–2/sqft (est. install)	~\$2.3–2.7/sqft (like drywall)	~\$1–2/sqft (est. panel install)	\$1.00–\$2.00 †
Total cost 10 years (per 100m²) mat + install + HVAC Base: \$1,200/yr	\$9,700 ✓ Lowest	\$11,200	\$11,950	~\$13,200 (est.)	~\$277,700 (retail sample)	~\$18,800 (est.)	~\$21,200 (est.)	\$12,400 †
Total cost 10 years (per 100m²) mat + install + HVAC Base: \$1,200/yr	\$15,700 ✓ Lowest	\$20,200	\$20,350	~\$21,300 (est.)	~\$285,800 (retail sample)	~\$28,400 (est.)	~\$29,300 (est.)	\$22,300 †
* Winter savings/yr per 100m² · base \$1,440/yr heating	\$504/yr 35% savings	\$317/yr 22%	\$374/yr 26%	\$360/yr 25%	\$317/yr 22%	\$288/yr 20%	\$288/yr 20%	\$259/yr 18%
* Summer savings/yr per 100m² · base \$960/yr cooling	\$528/yr 55% savings	\$173/yr 18%	\$211/yr 22%	\$384/yr 40%	\$365/yr 38%	\$336/yr 35%	\$336/yr 35%	\$115/yr 12%

Total annual savings per 100m ² · base \$2,400/yr HVAC	\$1,032/yr ✓ Highest	\$490/yr	\$585/yr	\$744/yr	\$682/yr	\$624/yr	\$624/yr	\$374/yr
Estimated payback	3–7 years	5–10 years	5–10 years	5–10 years	6–12 years	8–15 years	6–12 years	8–15 years
Certifications	ASTM E84 Class A (FS 5 / SD 5) (Syndego)	Class A; GREENGUARD Gold; IBC/IRC	E136 noncombust.; E84 FSI/SDI 0; GREENGUARD	A (claimed); non-toxic/non-combust.	bio-based, biodegrad.; no US building cert. (gold chain)	Drywall stu (ASTM C1396); EU Euroclass; US E84 unconfirmed	flammable; SP line low-flam.; no public US fire	ASTM E84, ICC-ES (ESR); UL; FM; requires thermal barrier
Retrofit available	✓ Yes — 1 cm on existing wall	~ Limited — open cavity	~ Limited — cavity/wall gap	✓ Yes — mat under drywall	~ Limited — panels/pouches	✓ Yes — replacement board	~ Limited — CSM panels	~ Limited — exterior EIFS
Environmental impact	Inorganic PCM, non-toxic, recyclable; low (less material)	High production energy; non-biodegrad.; possible irritants	High production energy; recyclable; noncombustible	Bio-based, recyclable, non-toxic	Bio-based, biodegradable, renewable	Paraffin (fossil) microencaps.; recyclable gypsum	RT paraffin (fossil); SP better; recyclable aluminum	Petroleum-derived; non-biodegrad.; recyclable (rare)

LEGEND

Green = Material cost (verified: Home Depot & Lowe's, June 2026)

Blue = Installation cost (US market estimates 2026)

Gold = Total Cost 10 Years (material + installation + HVAC savings, per 100m²)

† EPS requires mandatory thermal/ignition barrier (+\$3–5/m²) | PCM prices (Jun 2026): BASF Micronal finished board \$33–98/m²; Rubitherm macro-encaps. system \$80–150/m²; BioPCM wholesale \$21–95/m² (M-27 → M-182); PureTemp retail sample only ~\$2,680/m² | PCM TCO = estimate (install estimated as panels) */* Energy savings: reference home 100m², HVAC base \$2,400/yr (60% heating / 40% cooling, average US climate).

TI-SKIN® — Confronto Materiali vs Isolanti Tradizionali (Europa / resto del mondo, EUR)

Fonte: Pure Organica Corp. | TABELLA EUROPA (€/m²) | Energia Italia 2026: base HVAC €2.100/anno per 100m² (riscald. gas ~€1.800 + raffr. ~€300) | Concorrenza: prezzi materiale US convertiti a 1 USD=€0,875 (29 giu 2026) | TCO = Materiale + Installazione + HVAC × (1-risparmio%) × anni.

Criterio	TI-SKIN®	Fibra di Vetro	Lana di Roccia	BioPCM	PureTemp	BASF Micronal	Rubitherm	EPS
Tipo	Dinamico (PCM inorganico)	Statico	Statico	Dinamico (PCM organico)	Dinamico (PCM organico)	Semi-dinamico	Periodico	Statico (rigido)
Spessore necessario	1 cm ✓	10–15 cm	10–15 cm	2–4 cm	2–5 cm	5–10 cm	3–5 cm	5–10 cm
Gestione picchi termici	✓	✗	✗	✓	✓	~	✓	✗
Risparmio HVAC	40–60%	20–30%	25–35%	25–40%	25–40%	15–25%	25–40%	15–20%
Resistenza al fuoco	✓ Classe A (E84: FS 5 / SD 5)	~ B/C	✓ A1	✗ Org.	✗ Org.	✓	✗ Org.	✗ NFPA
Resistenza all'umidità	✓	✗	✓	~	✗	✓	~	✓
Stabilità ciclica	>10.000	—	—	~5.000	~3–5.000	~5.000	~3.000	—
Garanzia	✓ 20 anni	~10 anni	~10–15 anni	~10 anni	~5–10 anni	~10 anni	~5 anni	~5–10 anni
Manutenzione	✓ Zero	Periodica	Periodica	Periodica	Periodica	Periodica	Periodica	Periodica
Costo materiale (€/m²)	€40/m²	€7–13/m²	€13–21/m²	€18–43/m² (M-27–M-91 inarosso)	~€2.345/m² (campione retail)	€29–86/m² (scheda finita)	€70–131/m² (sistema macro-incaps.)	€4–8/m²
Costo installazione (€/m²)	€10/m²	€4–14/m²	€9–19/m²	€9–19/m² (stima)	€9–19/m² (stima)	€21–25/m² (come cartongesso)	€9–19/m² (stima)	€9–19/m² †
Costo totale 10 anni (per 100m²) mat + install + HVAC Base: €2.100/anno	€18.050 ✓ Il più basso	€18.400	€18.750	~€19.750 (stima)	~€251.800 (campione retail)	~€24.400 (stima)	~€27.800 (stima)	€19.400 †
Costo totale 20 anni (per 100m²) mat + install + HVAC Base: €2.100/anno	€31.100 ✓ Il più basso	€34.900	€34.400	~€35.050 (stima)	~€267.700 (campione retail)	~€40.750 (stima)	~€44.150 (stima)	€36.800 †
* Risparmio invernale/anno per 100m² · base €1.800/anno riscald.	€630/anno 35% risparmio	€396/anno 22%	€468/anno 26%	€450/anno 25%	€396/anno 22%	€360/anno 20%	€360/anno 20%	€324/anno 18%
* Risparmio estivo/anno per 100m² · base €300/anno raffres.	€165/anno 55% risparmio	€54/anno 18%	€66/anno 22%	€120/anno 40%	€114/anno 38%	€105/anno 35%	€105/anno 35%	€36/anno 12%
Risparmio annuale totale per 100m² · base €2.100/anno HVAC	€795/anno ✓ Massimo	€450/anno	€534/anno	€570/anno	€510/anno	€465/anno	€465/anno	€360/anno

Payback stimato	3–7 anni	5–10 anni	5–10 anni	5–10 anni	6–12 anni	8–15 anni	6–12 anni	8–15 anni
Certificazioni	ASTM E84 Classe A (FS 5 / SD 5) (EnigMAT — Syndeago)	ASTM C665; E84 Classe A; GREENGUARD Gold; conf. IBC/IRC	ASTM C612/C665; E136 incombust.; E84 FSI/SDI 0; GREENGUARD Gold; ICC-ES	ASTM E84 Classe A (dich.); non-tossico/non-combust. (produttore)	USDA; biodegrad.; nessuna cert. edile US (uso)	Std cartongesso (ASTM C1396); Euroclasse EU; E84 US non confermato	PCM inorganico = incombustibile; linea SP bassa inf.; no class. fuoco US pubbl	ASTM C578; ICC-ES (ESR); UL; FM; richiede barriera termica
Retrofit disponibile	✓ Sì — 1 cm su parete esistente	~ Limitato — apertura cavità	~ Limitato — cavità/intercapedine	✓ Sì — mat sotto cartongesso	~ Limitato — pannelli/cuscini	✓ Sì — lastra sostitutiva	~ Limitato — pannelli CSM	~ Limitato — cappotto esterno
Impatto ambientale	PCM inorganico, non tossico, riciclabile; basso (meno materiale)	Alta energia produz.; non biodegrad.; possibili irritanti	Alta energia produz.; riciclabile; incombustibile	Bio-based, riciclabile, non tossico	Bio-based, biodegradabile, rinnovabile	Paraffina (fossile) microincaps.; gesso riciclabile	Paraffina (fossile); SP migliore; alluminio riciclabile	Derivato petrolio; non biodegrad.; riciclabile (raro)

LEGENDA

Verde = Costo materiale (verificato: Home Depot & Lowe's, giugno 2026)

Blu = Costo installazione (stime mercato US 2026)

Oro = Costo Totale 10 Anni (materiale + installazione + risparmio HVAC, per 100m²)

TI-SKIN (UE) = EnigMAT (US/CA, Syndeago) | Unità €/m² | Base energetica Italia €2.100/anno/100m² (gas €1.800 + raffr. €300) | Prezzi concorrenza convertiti da USD (×0,875) | Caratteristiche e certificazioni valide per entrambi i mercati.