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# LO/MIT-I<sup>TM</sup>

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## RADIANT BARRIER COATING

### For Energy Conservation and Light Reflection

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LO/MIT-I is a silver colored, non-thickness dependent, low emissivity coating. Its superb ability to reflect both heat (infrared radiation) and light make it an excellent, low cost substitute for metallic foils or metallized plastic films. High temperature tolerance, excellent adhesion and the ability to produce uniformly low emissivities on a wide variety of substrates make LO/MIT-I unique in the field of high technology coatings.

#### OPTICAL CHARACTERISTICS

Laboratory application of LO/MIT-I on glass substrates has lowered emissivity from .86 to .22 and increased spectral reflectivity from 7.3% to 85%. LO/MIT-I can be applied to a wide variety of substrates and normally will create a surface emissivity of .21-26, and a spectral reflectivity of 81%-85%, depending on the substrate used. The chart on the rear of this bulletin shows optical properties on specific materials.

#### CONSTITUENTS

Aromatic hydrocarbons, aliphatic ketones, proprietary pigments and binders.

#### SOLVENT

Solsolv 301 or xylene.

#### VISCOSITY

29 seconds #1 Zahn's cup.

#### HARDNESS

Extremely durable 3H hardness when heat cured 20 minutes at 450°F. Ambient cure hardness increases with time. Extremely flexible even when heat cured.

#### DEGRADATION & OUTGASSING

Unaffected by UV or elevated temperatures. Thermally tolerant to 1000° F (538°C). No outgassing when correctly cured.

#### COVERAGE

400-800 square feet/gallon, depending on surface and application method.

#### ASTM STANDARD

LO/MIT-I conforms to ASTM standard C1321-98, Interior Radiation Control Coatings (IRCC).

#### MIXING

Coating supplied ready for use. No thinning is required or suggested. Shake well before using. If possible, agitate during application.

#### SURFACE PREPARATION

Normally, adhesion is the only factor that will be affected by surface preparation. Optical properties will remain constant except on surfaces that are very porous such as brick and cement. To improve optical properties on porous substrates, appropriate fillers and primers may be used to increase surface smoothness. This will also increase coverage. On metallic substrates, such as cold rolled or galvanized steel, that may be subject to possible corrosion or oxidation, appropriate primers should be used before applying LO/MIT-I. Where a surface is already primed or painted, apply a test patch of LO/MIT-I to ascertain that the prepared surface is compatible with the solvents used in LO/MIT-I. Plastics may require surface treatment to increase adhesion and should be tested for compatibility with LO/MIT-I. Most building materials, such as wood, plasterboard, paper faced insulation batts, fibrous ceiling tiles and painted metal roof decking require no surface preparation except that they be clean and dust free. Masonry surfaces should be allowed to cure for one month prior to the application of LO/MIT-I.

Any surface preparation questions not answered in this section should be referred to our Technical Services Department.

#### APPLICATION

**Spray:** High quality spray equipment, such as that available from DeVilbiss or Graco is recommended for the application of LO/MIT-I. Air atomization, either conventional, HVLP or electrostatic may be used for production applications. Airless is the best choice for roofing or building applications (using a #613 self-cleaning tip). In all cases, it is extremely important to make sure the coating is well mixed, both before and during the application. For more specific equipment guidance, please contact the factory.

**Brush and Roller:** LO/MIT-I may also be applied using a solvent resistant paintbrush or roller. However, coverage may be substantially reduced.

**Note:** Good ventilation is necessary for operator safety and drying and curing of the applied coating.

#### CLEAN UP

Clean application equipment with Solsolv 301 or Xylene. Use Isopropyl Alcohol for operator clean up and removal from clothing.

#### DRYING AND CURE

Coating will skin dry within one minute after application. Drying to touch will generally occur within 15 minutes to one hour depending on ambient temperature and humidity. Curing can be accelerated by application of heat up to 500°F (260°C) for 4 to 30 minutes. Experimentation will determine the best curing procedures for your particular environment.

#### STORAGE

Keep at room temperature in tightly sealed container. Keep out of direct sunlight to avoid pressure increase in container. Full containers will remain usable for 1 year from date of manufacture.

#### CAUTION

Contains flammable solvents. Do not expose to elevated heat or open flames. Use with adequate ventilation and avoid excessive breathing of vapor or spray mist. Avoid contact with eyes. OSHA regulations, Sections 1915.24 — Painting, 1915.25 — Flammable Liquids and 1915.82 — Respiratory Protection give additional helpful safety suggestions.

#### FIRST AID

Remove from skin using isopropyl alcohol and warm soapy water. In case of contact with eyes, flush with clean water for at least 15 minutes and get medical attention. If swallowed, get immediate medical attention. If headache, dizziness or nausea result from excessive inhalation of vapors, remove to fresh air and administer oxygen if necessary.

#### PACKAGING

Steel containers. Quarts, gallons, 5 gallon tight head pails. Weights including containers: Quart (.95 liters) = 2.5 lbs. (1.13 kilos), Gallons (3.79 liters) = 8.2 lbs. (4.24 kilos), 5 gallons (18.93 liters) = 42.5 lbs. (21.66 kilos).

#### ORDERING AND PRICING INFORMATION

Contact factory for pricing and availability at 609-883-7700 or [solec@attglobal.net](mailto:solec@attglobal.net). F.O.B. Ewing, N.J. Shipping and packaging extra. Available for export.

Terms: Net 30 days for D&B rated firms.

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**SOLAR ENERGY CORPORATION, 129 Walters Ave., Ewing, NJ 08638-1829, USA**

[www.solec.org](http://www.solec.org)

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**U.S. GOVERNMENT PURCHASERS:**

LO/MIT-I is available through GSA: Contract #TFTC-88-CK-NIIS-01 effective 7/1/89-Section Heading: 80 Brushes, Paint, Sealers & Adhesives. GSA, Proc. Div. (9FTP10-C-M) GSA Center, Auburn, WA 98001.

**TECHNICAL SERVICES DEPARTMENT**

Contact factory at 609-883-7700, Mon-Fri 9 am - 5 pm, EST; fax at 609-497-0182 or email at [solec@attglobal.net](mailto:solec@attglobal.net), 24 hours a day.

**ACCESSORIES & ADDITIONAL PRODUCTS**

- **LO/MIT-II**, Interior Radiation Control Coating (water-based)
- **SOLKOTE HI/SORB-II**, spray applied selective coating.
- **SOLKLEAN 101**, Production metal cleaner.
- **SOLSOLV 301**, Low cost replacement solvent for Xylene.
- **ISOPROPYL ALCOHOL**, For clean-up of LO/MIT-I coatings.

**IMPORTANT NOTICE TO PURCHASER**

This bulletin is an introductory summary of LO/MIT-I Radiant Barrier Coating. The information provided is based upon typical installation conditions and tests we believe to be reliable. However, due to a wide variety of possible use conditions, SOLEC does not guarantee that typical values expressed will necessarily be obtained. The following is made in lieu of warranties, expressed or implied, including merchantability.

Seller's only obligation shall be to replace such quantity of the product proved to be defective. Seller shall not be liable for any injury, loss or damage, direct or consequential, arising out of the use of or inability to use the product. Before using, user shall determine the suitability of the product for their intended use, and user assumes all risk and liability whatsoever in connection therewith.

No statement or recommendation shall have any force or effect unless in an agreement signed by officers of seller and user.

**RESEARCH FACILITIES**

The Solar Energy Corporation maintains a complete laboratory for the analysis of optical coatings. Our low cost services for the analysis of optical surfaces are used by many large manufacturers. Please contact us for prices.

**LO/MIT NOTES**

The Solar Energy Corporation publishes bulletins called LO/MIT NOTES on the application and usage of LO/MIT-I. The following bulletins are available, free, to interested parties:

Title	Subject	Application
EC/RC001	Case Study/Energy Conservation	Roof Coating
RB/IRCC	LO/MIT-I/Questions & Answers	Interior Radiant Barrier

**OPTICAL PROPERTIES OF SELECTED SUBSTRATES**

Substrate	Emissivity Before LO/MIT Applied	Emissivity After LO/MIT Applied	Diffuse Reflectivity Before LO/MIT Applied	Diffuse Reflectivity After LO/MIT Applied
brick (red clay)	.92	.36	36%	71%
cement block	.93	.37	32	66
glass (soda lime)	.86	.22	7.3	85
galvanized steel (bright)	.03	.25	77	84
galvanized steel (dull paint lock)	.57	.26	15	82
paper (kraft)	.80	.24	48	81
plasterboard	.90	.21	55	85
plywood	.72	.22	46	81
poly carbonate (clear)	.84	.22	8.6	84
polypropylene (opaque)	.90	.23	8.1	84
steel, cold rolled, primed	.87	.25	22	83
steel, cold rolled, unprimed	.10	.23	57	84
steel, 316 stainless	.19	.23	59	84

**LO/MIT-I Application Ideas**

**Aircraft**

LO/MIT-I is extremely lightweight (less than .05oz./ft<sup>2</sup>). It may be effectively used as a heat shield on many aircraft components including wiring harnesses, cowlings, fire walls and electronic components. It is also an excellent coating for balloon fabrics.

**Automotive**

LO/MIT-I may be used as a low cost, lightweight heat shield on many automotive components including wiring harnesses, battery boxes, exhaust systems, air conditioning ducts, fire walls, intake manifolds, fuel pumps, rubber hoses, shock absorber boots, floor pans, electronic and plastic components.

**Building and Construction**

LO/MIT-I is a low cost substitute for metallic or metallized plastic foils. Wherever these products are used for energy conservation in new or retrofit construction, spray application of LO/MIT-I will generally prove to be as effective at half the cost. In many instances, where it may be impractical to staple or tack reflective radiant barriers, LO/MIT-I may be easily spray applied.

**Daylighting**

Since LO/MIT-I exhibits a high diffuse reflectivity on many building materials, it may be effectively used to enhance daylighting and lower illumination costs.

**Energy Conservation**

The use of LO/MIT-I on ceiling and wall surfaces can result in substantial heating and cooling energy savings. (See Radiant Barriers, Building and Construction, Metal Buildings.) Also, in factory buildings and warehouses, the application of LO/MIT-I to interior ceiling surfaces may raise winter radiant temperatures and increase ceiling reflectivity, thereby lowering both heating and lighting costs.

**Metal Buildings**

LO/MIT-I, when applied to the exterior of metal buildings, has been shown to lessen building skin temperatures in excess of 30°F (16°C) in 95°F (35°C) ambient environments. This can lead to substantial decreases in heating and air conditioning costs.

**Ovens, Process Piping, Power Generation Equipment**

LO/MIT-I when applied to the exterior surfaces of boilers, ovens or high temperature process piping can effectively block thermal radiation and may lead to substantial efficiency increases.

**Plastics**

Whenever plastics are subjected to elevated temperatures, surface application of LO/MIT-I may lessen degradation due to adverse thermal environments. In many cases, lower cost and lower weight plastics may be used when they are coated with LO/MIT-I.

**Radiant Barriers**

Recent tests by the Florida Solar Energy Center (FSEC) indicate that the role of radiant heat transfer, particularly in hot, sunny climates, may be much more important than recently recognized. In these climates, heat gain prevention is often more critical to the energy performance of a building than stopping heat loss. Application of LO/MIT-I to the undersides of roofs and cavity wall surfaces creates an extremely effective radiant barrier that may lead to substantial energy savings at lower installed per square foot costs than aluminum foil or metallized plastic films.

**Reflectors**

LO/MIT-I exhibits excellent diffuse reflectivity on many substrates. It may be used as a low cost reflective surface in lighting fixtures, control panels and many other applications where reflectivity is needed.

**Roof Coating**

LO/MIT-I will lower roof skin temperatures 20-40°F. It is unaffected by UV radiation and highly reflective to infrared. It will greatly extend roof life and may be brushed, rolled or spray applied to bitumen, PVC, EPDM, asphalt, tar and gravel, foam, shingle, tile, steel and most other roofing surfaces. It is hydrophobic and tends to be self-cleaning. Field testing in Southern climates has shown energy savings from 15% to in excess of 30% when LO/MIT-I is used as a reflective roof coating.

**Selective Surfaces**

High emissivity surfaces such as glass or cement, when coated with LO/ MIT-I, exhibit low emissivities of .22-30. By overcoating the LO/MIT-I surface with SOLKOTE Hi/Sorb-II spray applied selective coating, a semi-selective surface exhibiting emissivities of .42-50 and absorptivities of 95 to 97% may be achieved. At an installed cost of 12 to 17 cents per square foot, substantial cost savings can be achieved over the use of selective metal foils.