SOLKOTE HI/SORB-II™ is an optical coating specifically formulated for solar thermal applications. Its high temperature tolerance, resistance to moisture and UV degradation, and excellent optical qualities make it an ideal, low cost substitute for electro or vacuum deposited selective surfaces. Its high absorptivity and strong adhesion to cementitious surfaces also make it an ideal passive coating. With a proven history of reliability and longevity, SOLKOTE has powered many of the world's largest solar thermal manufacturers' collectors since 1980. Is your collector Powered By SOLKOTE?

**CHARACTERISTICS:**
Thickness and substrate dependent. Low emissivity substrates, such as aluminum and copper, yield best optical properties. Emissivity can range from 0.20 to 0.49 depending on dry film thickness, substrate and surface preparation. Absorptivity will range from 0.88 to 0.94. Wet film thickness of 0.8 to 1.0 mils (0.020 to 0.025mm) and careful cleaning of substrate will yield optimum results.

Thermally tolerant from -100°F to +1000°F (-73°C to +538°C). High temperature adhesion is dependent upon careful substrate preparation and cure. No out-gassing when correctly cured. Resists UV and moisture degradation. Not recommended for immersion or unglazed applications.

**USES:**
All low to high temperature glazed active thermal applications including concentrating collectors. Most glazed passive thermal applications.

**SUBSTRATES:**
May be applied to aluminum, copper, steel, brick, stone, masonry, adobe and some plastics. Primers may be required for mild steel and galvanized surfaces. Primers will increase emissivity but will not affect absorptivity. Absorptivity is extremely high on cementitious or ceramic substrates but selectivity is moderate.

**PHYSICAL AND CHEMICAL PROPERTIES:**
- **Binder:** 100% silicone polymer
- **Solvent:** Xylene
- **Appearance:** Very Dark Liquid
- **Odor Characteristics:** Aromatic Hydrocarbon
- **% Volatile by volume:** 83%
- **Vapor Density:** (Air=1) >1
- **Odor Threshold:** 100 ppm
- **% Solids by Weight:** 15%
- **VOC Regulatory:** 812 g/L, VOC Actual: 812 g/L
- **Shelf Life:** 1 year from date of manufacture
- **Storage Temperature:** -50°F to +80°F (-45°C to +27°C)
- **Specific Gravity:** (H2O=1) <1

**DEGRADATION:**
Unaffected by moisture, UV or elevated temperatures in glazed solar applications when correctly cured.

**COVERAGE:**
400 to 900 ft²/gallon (40-90 m²) at 1 mil wet film. Coverage will vary depending on application conditions.

**MIXING:**
SOLKOTE HI/SORB-II is supplied ready for use. No thinning is required or suggested. Mix well before using. Do not allow pigments to settle. If possible, agitate frequently during application.

**OUTGASSING:**
None when correctly cured.

**SURFACE PREPARATION:**
Substrate preparation is extremely important since collectors are expected to function without maintenance for twenty years. Initial substrate emissivity and coating adhesion can be significantly improved through careful attention to surface preparation. SOLKOTE exhibits excellent adhesion on many substrates with little or no surface preparation. However, the following procedures are suggested to ensure the excellent optical properties and long-term durability available from this product.

**Metallic Substrates:**
Degrease metallic substrates using Xylene, Toluene, Acetone or other suitable solvents. This is generally considered minimum surface preparation. Copper, aluminum and stainless steel may also be lightly acid etched to remove surface oxides and lower emissivity. Aluminum may also be conversion coated to lessen future oxidation. Mild steel and galvanized surfaces should not be acid cleaned but may require priming. Use of primers will increase emissivity and may also raise absorptivity.

**Passive Substrates:**
Masonry substrates for passive application should be air cured for at least one month prior to application of SOLKOTE. Surface should be free of all paint, loose grout and dust. SOLKOTE has a natural affinity for most masonry substrates and ceramic surfaces, but is extremely thin. Suitable primers or fillers may be used to extend coverage. SOLKOTE will yield a highly absorptive and long-lived surface on cementitious substrates, but selectivity will be limited.
APPLICATION METHODS:
SOLKOTE has been formulated specifically for air atomization spray application. Simple spray guns normally used in automotive body repair facilities have proven to be quite adequate for application. Electrostatic and HVLP equipment is also suitable but substantially more expensive. Gun pressures should be kept fairly low (25-35 PSI) to lessen over spray and allow good thickness control. Remote pressure supply pots should have air driven agitators and the coating should be mixed as often as is practical during application. A wet film thickness of 0.8 to 1.0 mils (0.020 to 0.025mm) is ideal and may be easily measured using a wet film thickness gauge during application. Handheld airless equipment is not recommended, however specialized automated airless spray equipment may be utilized. Consult factory for questions with spray equipment selection. Substrate temperatures should not exceed 90°F (32°C) during application and surface should be dry prior to application. Good ventilation and operator protection is imperative.

DRYING AND CURE:
Curing is highly dependent upon substrate type, humidity and ambient temperature. Skin forms within 2 to 5 minutes; coated absorber may be normally handled after 1 to 3 hours drying at room temperature. SOLKOTE will naturally cure, to a point where no out-gassing will occur, within 3 days at room temperature of 60°F (16°C) or above. Curing may be easily accelerated by baking the coated absorber panel at temperatures ranging from 225°F (107°C) to 450°F (232°C) for a period of 15 minutes to one hour. Copper should not be cured at temperatures above 400°F (204°C) as it will oxidize and cause a decrease in coating adhesion. Other metals, such as aluminum and stainless steel, may be cured at temperatures up to 450°F (232°C). Coated absorber plates may also be placed in bright sunlight to accelerate curing. Hardness will increase with time and temperature. Experimentation will determine the best curing procedures for your particular environment.

CLEAN UP:
Clean spray gun and spray gun lines with Xylene.

STORAGE:
Store at room temperature with cap tightly sealed on container. Keep out of direct sunlight to avoid pressure increase in container. Best if used within 1 year of date of manufacture. Partial pails can be re-used after opening if stored properly and mixed thoroughly.

FIRST AID:
Eye Contact: Flush eyes with fresh water for at least 15 minutes.
Skin Contact: Clean exposed area with Isopropyl Alcohol, then wash with soap & water. If irritation occurs, get medical attention.
Inhalation: If shortness of breath occurs, remove person to fresh air. Administer oxygen if necessary.
Ingestion: Get medical attention immediately. DO NOT induce vomiting.

CAUTIONS:
CONTAINS flammable solvents.
DO NOT expose to elevated heat or open flames.
DO NOT take internally. Contains compounds that may be harmful.
AVOID breathing vapors or spray mist; wear respirator and apply in well-ventilated area.

After using product, thoroughly wash hands with soap and water before eating, drinking or smoking.

KEEP OUT OF REACH OF CHILDREN
OSHA regulations, sections 1915.24 Painting, 1915.25 Flammable Liquids and 1915.82 Respiratory Protection give additional helpful safety suggestions.
Review MSDS for more product information.

PACKAGING:
Available in 1 gallon and 5 gallon steel pails
1 gallons (3.785 liters) – 8.0 lbs (3.64 Kg)
5 gallons (18.925 Liters) – 42.0 lbs (19.09 Kg)

TRANSPORTATION INFORMATION:
Flammable liquid n.o.s. (Contains Xylene), Class 3, UN1993, PGIII
(All packaging is certified for air and ocean freight and available for export)

IMPORTANT NOTICE TO PURCHASER:
This bulletin is an introductory summary of SOLKOTE HI/SORB-II Selective 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 uses and conditions, SOLEC does not guarantee that typical values expressed will be necessarily obtained.

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:
SOLEC-Solar Energy Corp. maintains a complete laboratory for the analysis of selective solar coatings. Equipment includes a surface emissometer, solar spectrum reflectometer and alphasometer, Bausch & Lomb metallurgical microscopes, twelve-sun natural light accelerated coating tester, accelerated coating UV and moisture system, high temperature thermal cycling systems, and data logging and computer equipment necessary for coating research. Our low cost services for the analysis of selective surfaces are used by many of the world’s largest solar manufacturers. Please contact us for prices.

Contact factory for SOLKOTE pricing and any additional technical questions.