Where to Use Sonoguard®

- Concrete
- Exterior-grade plywood
- Stadiums
- Balconies
- Parking ramps
- Mechanical rooms
- Plazas

Sonoguard® coating systems are composed of:

- Sonoguard® Base Coat—one-component moisture-curing polyurethane
- Sonoguard® Top Coat—one-component aliphatic moisture-curing polyurethane
- Sonoguard® Top Coat Tint Base—consists of 40 standard colors, (refer to Form No. 1017936)

For projects requiring primer, two choices are available:

- Primer 772 VOC—a single-component solvent-based primer and sealer
- Primer 770—a two-component waterborne epoxy primer and sealer

Features

- No primer coat required...
- VOC compliant...
- Waterproof...
- Protects from chloride intrusion...
- Skid resistant...
- Multiple systems available...
- Seamless elastomeric membrane...
- Repairable and recoatable...

Benefits

- Lower labor and material costs
- Environmentally responsible
- Protects concrete from freeze-thaw damage
- Protects occupied areas below from water damage
- Extends life of reinforcing steel
- Increased safety
- Ideal for vehicular or heavy pedestrian traffic
- No seams to cause leaks
- Extends the useful life of the system
How to Apply Sonoguard®

Surface Preparation

Concrete
1. Concrete must be fully cured (28 days), structurally sound, clean and dry. All concrete surfaces (new and old) must be mechanically prepared to remove previous coatings, laitance, and all miscellaneous surface contamination and to provide profile for proper adhesion.

2. Patch voids and delaminated areas with Sonocrete® patching materials.

3. For non-moving joints and cracks less than 1/16" (1.6 mm) wide, apply primer when required, followed by 25 wet mils (0.6 mm) prestriping of Base Coat. The Base Coat must be applied to fill and overlap the joint or crack 3" (76 mm) on each side. Feather the edges.

4. Dynamic cracks and joints over 1/16" (1.6 mm) wide must be routed to a minimum of 1/4" by 1/4" (6 mm by 6 mm) and cleaned. Install bondbreaker tape to prevent adhesion of sealants to the bottom of joint. Prime joint faces only with Sonneborn Primer 733 (refer to Form Nos. 1017906, 1017911 and 1017894). Prestripe 4 - 6" (102 - 152 mm) wide with 25 wet mils (0.6 mm) of slope-grade base coat. Reinforce all seams between plywood sheets and between flashing and the plywood deck by embedding Sonoshield® Reinforcing Fabric into the prestriping.

Application

1. All preparatory work must be completed before application begins. Be certain the substrate is clean, dry, stable and properly profiled. Sealants and prestriping should be properly cured. The base, mid, and finish coats are applied with a properly sized squeegee to arrive at the required mil thicknesses. (Airless spray equipment may also be used.) The best method to ensure the proper wet film thickness is the use of a grid system. Divide the surface to be coated into grids and calculate the square footage of each. Refer to the coverage chart to determine the quantity of Sonoguard® needed for each grid to arrive at the required mil thicknesses. For example, one gallon of Sonoguard® will cover an area approximately 300 sq. ft. (28 m²), or a grid 30' x 10' (9 x 3 m) at 25 wet mils (0.6 mm).

The mil thickness of all coats can also be verified by the use of a wet-mil thickness gauge.

Note: When primer is required on a job, follow No. 2 and 3. When applying Sonoguard® without using a primer, proceed to No. 4.

2. After thoroughly vacuuming the surface, apply Primer 772 VOC or Primer 770 to all the properly prepared deck surfaces at the rate of 200 - 250 sq. ft. (4.9 - 6.1 m²/L) per gallon. Using a roller pan and a short- to medium-nap roller cover, force the primer into pores and voids to eliminate pinholes. Do not apply over prestriping. Use only solvent-resistant tools and equipment.

3. Allow primer to dry tack free. Base Coat must be applied the same working day.

4. Apply Base Coat 25 wet mils thick (0.6 mm) using a notched squeegee to entire deck surface, overcoating the properly prepared cracks, joints, and flashings. For sloped areas, use Slope-Grade Base Coat. Do not coat expansion joints over 1" (25 mm) wide.

5. Allow curing time of overnight (16 hour minimum). Slightly extend the curing time in cool or dry weather conditions. The surface of the base coat should have a slight tack. If the coating has been exposed for a prolonged period, consult Technical Services for recommendations.

Application Methods

Sonoguard® can be applied using several methods, depending on the degree of traffic the system is exposed to. The following summary briefly describes each method. All coverage rates are approximate.
**PEDESTRIAN SYSTEM**

1. Prime concrete substrate (if required).
2. Apply 25 wet mils (0.6 mm) Sonoguard® Base Coat (using a notched squeegee) at 60 sq. ft. per gallon (1.5 m²/L). Immediately backroll to level Base Coat. Allow to cure overnight.
3. Apply 20 wet mils (0.5 mm) Sonoguard® Top Coat (using a notched squeegee) at 80 sq. ft. per gallon (2.0 m²/L). Immediately backroll to level Top Coat material. While the coating is still wet, broadcast Sonoguard® Aggregate or 16 - 30 rounded silica sand at 10 - 25 lbs. per 100 sq. ft. (0.5 - 1.25 kg/m²), then backroll into the coating.

**LIGHT TO MEDIUM DUTY TRAFFIC SYSTEM**

1. Prime concrete substrate (if required).
2. Apply 25 wet mils (0.6 mm) Sonoguard® Base Coat (using a notched squeegee) at 60 sq. ft. per gallon (1.5 m²/L). Immediately backroll to level Base Coat. Allow to cure overnight.
3. Apply 25 wet mils (0.6 mm) Sonoguard® Top Coat (using a notched squeegee) at 80 sq. ft. per gallon (2.0 m²/L). Immediately backroll to level Top Coat material. While the coating is still wet, broadcast Sonoguard® Aggregate or 16-30 rounded silica sand at 10 - 25 lbs. per 100 sq. ft. (0.5 - 1.25 kg/m²), then backroll into the coating.

**HEAVY DUTY TRAFFIC SYSTEM**

1. Prime concrete substrate (if required).
2. Apply 25 wet mils (0.6 mm) Sonoguard® Base Coat (using a notched squeegee) at 60 sq. ft. per gallon (1.5 m²/L). Immediately backroll to level Base Coat. Allow to cure overnight.
3. Apply 20 wet mils (0.5 mm) Sonoguard® Top Coat (using a flat squeegee) at 80 sq. ft. per gallon (2.0 m²/L). Immediately backroll to level Top Coat. While coating is still wet, broadcast Sonoguard® Aggregate or 16-30 rounded silica sand to refusal at approximately 50 - 60 lbs. per 100 sq. ft. (2.5 - 3 kg/m²). Allow to cure overnight.
4. Remove all loose aggregate, then apply 20 mils (0.5 mm) Sonoguard® Top Coat (using a notched squeegee) at 80 sq. ft. per gallon (2.0 m²/L). Immediately backroll to level Top Coat.

**EXTRA HEAVY DUTY SYSTEM**

1. Prime concrete substrate (if required).
2. Apply 25 wet mils (0.6 mm) Sonoguard® Base Coat (using a notched squeegee) at 60 sq. ft. per gallon (1.5 m²/L). Immediately backroll to level Base Coat. Allow to cure overnight.
3. Apply 32 wet mils (0.8 mm) Sonoguard® Top Coat (using a flat squeegee) at 50 sq. ft. per gallon (1.2 m²/L). Immediately backroll to level Top Coat. While the coating is still wet, broadcast Sonoguard® Aggregate or 16-30 rounded silica sand to refusal at 60 - 80 lbs. per 100 sq. ft. 3 - 4 kg/m². Allow to cure overnight.
4. Remove all loose aggregate, then apply 20 mils (0.5 mm) Sonoguard® Top Coat (using a flat squeegee) at 80 sq. ft. per gallon (2.0 m²/L). Immediately backroll to evenly level Top Coat.

**Important Note**

All coverage rates are approximate and may vary due to the application technique used. Actual coverage rate will depend on finish and porosity of the substrate.

**Mockup:**

Provide mockup of at least 100 sq. ft. (9.3 m²) to include surface profile, sealant joint, crack, flashing, and juncture details and allow for evaluation of slip resistance and appearance of Sonoguard® Systems.

1. Install mockup with specified coating types and with other components noted.
2. Locate where directed by architect.
3. Mockup may remain as part of work if acceptable to architect.

For recoat applications, see Sonoguard® Recoil System technical bulletin (Form No. 1018128).
**Curing Time**
Allow curing time of 72 hours before vehicular use and 48 hours before pedestrian use. Extend the curing time in cool weather conditions. To reduce the timeframe in which Sonoguard® might be vulnerable to inclement weather, or to reduce the time between coats, use Sonoguard® Top Coat Accelerator (See Form No. 1018139).

**Maintenance**
Surfaces may be cleaned with commercial detergents. Sonneborn recommends that a maintenance agreement be established between the owner and applicator. Periodic inspection and repair of damaged surfaces will greatly prolong the performance and life of the system. Remove all sharp debris such as sand, gravel, and metal on a regular basis to avoid damage to the coating.

When removing snow, avoid the use of metal blades or buckets that may damage the coating.

**Clean Up**
Clean all tools and equipment with Reducer 990 or xylene.

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**For Best Performance**
- Concrete should have a minimum compressive strength of 3,000 psi (20.7 MPa) and be cured for a minimum of 28 days.
- Ensure Sonoguard® system will not be subjected to rising water tables or hydrostatic pressure on slab-on-grade decks.
- Be sure to allow for movement in the deck by the proper design and use of expansion and control joints.
- When applying sealants, use backing materials according to industry standards.
- Be certain that all aggregate not properly encapsulated is thoroughly removed.
- When used interior provide adequate ventilation with a minimum of 6 air changes per hour.
- When adequate ventilation for use of Sonoguard® cannot be maintained, refer to technical data guide for Conipur II Deck Coating System (Form No. 1017917).
- Do not apply when substrates are over 90°F (32°C), under 40°F (4°C).
- On steep ramps in excess of 15%, profile surface and apply Penetrating Sealer 40 VOC.
- Sonoguard® Aggregate 16/30, rounded select silica sand is recommended.
- When applying to metal pan decks or decks containing between-slab membranes, contact Technical Service.
- Select the proper amount of aggregate to promote slip resistance.
- Prestripe to level out recessed sealant joints (less than 1” [25 mm]) for optimal aesthetic appearance.
- In areas of extreme traffic (turning lanes, pay booths, entrances and exits), apply the Extra Heavy-Duty Traffic System. Multiple coats with sand to rejection may be required; contact Technical Services for more information.
- Make certain the most current version of this data guide is being used; call Customer Service (1-800-433-9517) to verify the most current version.
- Proper application is the responsibility of the user. Field visits by ChemReX® personnel are for the purpose of making technical recommendations only and are not for supervising or providing quality control on the jobsite.
- Avoid application of Sonoguard® when inclement weather is present or imminent to damp, wet, or contaminated surfaces where chained or metal-studded tires will be used.

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**Troubleshooting**

The following tips can be used to solve possible problems as well as avoid them.

1. **Problem:** Irregular appearance…Possible causes: substrate too rough, uneven coating application, uneven aggregate distribution.
   **Solution:** Recoating may improve appearance. The number of additional coat(s) is dependent on the degree of irregularity. A sample recoat should be done.

2. **Problem:** Premature wear over high spots…Possible causes: failure to grind down abnormally rough concrete or junctions of slabs that do not line up evenly.
   **Solution:** Grind high areas. Recotate affected area with entire Sonoguard® system.

3. **Problem:** Uneven aggregate distribution…Possible causes: casting aggregate into an uneven aggregate inconsistent coating application, failure to properly embed aggregate, overly heavy finish coat.
   **Solution:** Aggregate should be evenly distributed before encapsulation. If the surface cures unevenly, a recoat may improve appearance. Use a sample area to gauge results of recoat.

4. **Problem:** Inadequate slip resistance…Possible causes: inconsistent coating application, failure to properly embed aggregate, overly heavy finish coat.
   **Solution:** When installing aggregate to refusal method, incorporate an additional 10 lb./100 ft.² (0.5 kg/m²) aggregate into the final lock coat.
Technical Data

Compliances
- UL 790 Class A Fire Rating
- ASTM C 957
- ASTM E 84

Test Data

<table>
<thead>
<tr>
<th>Property*</th>
<th>Base Coat (self-leveling)</th>
<th>Top Coat (self-leveling)</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight, per gallon, lbs.</td>
<td>9.9</td>
<td>9.1</td>
<td>ASTM D 1475</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>1.19</td>
<td>1.09</td>
<td></td>
</tr>
<tr>
<td>Solids by weight, %</td>
<td>84</td>
<td>77</td>
<td>ASTM D 1259</td>
</tr>
<tr>
<td>Solids by volume, %</td>
<td>81</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Viscosity, cps</td>
<td>4,000-9,000</td>
<td>2,000</td>
<td>ASTM D 2393</td>
</tr>
<tr>
<td>Flash Point, °F (°C)</td>
<td>104 (40)</td>
<td>105 (40.5)</td>
<td>ASTM D 56</td>
</tr>
</tbody>
</table>

*Uncured material

Typical Properties of Cured Membranes

<table>
<thead>
<tr>
<th>Property</th>
<th>Base Coat</th>
<th>Top Coat</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardness, Shore A</td>
<td>60</td>
<td>89</td>
<td>ASTM D 2240</td>
</tr>
<tr>
<td>Tensile strength, psi (MPa)</td>
<td>752 (5.2)</td>
<td>2,500 (17.2)</td>
<td>ASTM D 412</td>
</tr>
<tr>
<td>Elongation, %</td>
<td>50%</td>
<td>50%</td>
<td>ASTM D 412</td>
</tr>
<tr>
<td>Tear strength, psi</td>
<td>74</td>
<td>199</td>
<td>ASTM D 1004</td>
</tr>
</tbody>
</table>

ASTM C 957

<table>
<thead>
<tr>
<th>Property</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abrasion resistance, mg lost (CS17 wheel 1000 g/1000 cycles)</td>
<td>Max: 50</td>
</tr>
</tbody>
</table>

Test results are averages obtained under laboratory conditions. Reasonable variations can be expected.

Order Information

Packaging
- Primer 772 VOC: 5 gallon (18.93 L) pails
- Primer 770: 4 gallon (15.14 L) units in 5 gallon pails (18.93 L)
- Base Coat (self-leveling and slope-grade): 5 gallon (18.93 L) pails and 55 gallon (208 L) drums
- Top Coat: 5 gallon (18.93 L) pails and 55 gallon (208 L) drums
- Top Coat Accelerator: 1 pint (473 mL) cans
- Sonoguard® Adhesion Promoter (for recoat applications): 0.5 pint (236 mL) cans

Shelf life is typically 1 year when stored in unopened containers under normal conditions.

Colors
- Gray
- Charcoal Gray
- Tan

Colors are approximate; conduct final color matching with actual material.

For special colors, refer to Sonoguard® Top Coat Tint Base (Form No. 1017936).

Coverage

<table>
<thead>
<tr>
<th>Base coat</th>
<th>Heavy Duty (refusal method)</th>
<th>Heavy Duty (backroll method)</th>
<th>Extra Heavy Duty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wet mils (mm)</td>
<td>25 (0.6)</td>
<td>25 (0.6)</td>
<td>25 (0.6)</td>
</tr>
<tr>
<td>Dry mils (mm)</td>
<td>20 (0.5)</td>
<td>20 (0.5)</td>
<td>20 (0.5)</td>
</tr>
<tr>
<td>Coverage**</td>
<td>60 (1.5)</td>
<td>60 (1.5)</td>
<td>60 (1.5)</td>
</tr>
</tbody>
</table>

Mid coat

| Wet mils (mm) | None | None | 20 (0.5) | 20 (0.5) | 32 (0.8) |
| Dry mils (mm) | None | None | 15 (0.4) | 15 (0.4) | 25 (0.6) |
| Coverage** | None | None | 80 (2.0) | 80 (2.0) | 50 (1.2) |

Finish coat

| Wet mils (mm) | 20 (0.6) | 25 (0.6) | 20 (0.5) | 20 (0.5) | 20 (0.5) |
| Dry mils (mm) | 15 (0.4) | 20 (0.5) | 15 (0.4) | 15 (0.4) | 15 (0.4) |
| Coverage** | 80 (2.0) | 60 (1.5) | 80 (2.0) | 80 (2.0) | 80 (2.0) |

Aggregate

| lbs, per 100 sq. ft. (kg/m²) | 10 - 25 | 20 - 25 | 50 - 60 | 10 - 25 (0.5 - 1.25) | 60 - 80 |

Coverage rates are approximate, and may vary due to the application technique used. Actual coverage rate will also depend on finish and porosity of the substrate.

*16 - 30 mesh rounded silica sand or proportional equivalent
** Coverage is ft²/gal. (m²/L)
Detail Drawings

Crack Details (Dynamic)

Expansion Joint Detail (Less Than 1”)

Crack Detail (Static) – Sporadic Cracking

Expansion Joint Detail (Greater Than 1”)

Crack Detail (Static) – Alternate Option for Widespread Cracking

Plywood Application (Seam Detail)

General design details. Specific installations may require designer modification.
General design details. Specific installations may require designer modification.
Warning
Sonoguard® Base Coat contains titanium dioxide, talc, calcium carbonate, calcium sulfate, stoddard solvent, toluene disocyanate, silicon dioxide.

Risks
Combustible liquid and vapor. Inhalation of vapors may cause irritation and intoxication with headaches, dizziness and nausea. May cause skin and eye irritation. Potential skin and/or respiratory sensitizer. Ingestion may cause irritation. Reports associate repeated or prolonged occupational overexposure to solvents with permanent brain, nervous system, liver and kidney damage. INTENTIONAL MISUSE BY DELIBERATELY INHALING THE CONTENTS MAY BE HARMFUL OR FATAL.

Precautions
KEEP OUT OF THE REACH OF CHILDREN. KEEP AWAY FROM HEAT, FLAME AND SOURCES OF IGNITION. Avoid contact with skin, eyes or clothing. Wash thoroughly after handling. DO NOT take internally. Use only with adequate ventilation. Use impervious gloves, eye protection and if the TLV is exceeded or used in a poorly ventilated area, use NIOSH/MSHA approved respiratory protection in accordance with applicable federal, state and local regulations. Keep container closed. All label warnings must be observed until container is commercially cleaned or reconditioned.

First Aid
In case of eye contact, flush thoroughly with water for at least 15 minutes. SEEK IMMEDIATE MEDICAL ATTENTION. In case of skin contact, wash affected areas with soap and water. If irritation persists, SEEK MEDICAL ATTENTION. Remove and wash contaminated clothing. If inhalation causes discomfort, remove to fresh air. If discomfort persists or any breathing difficulty occurs, or if swallowed, SEEK IMMEDIATE MEDICAL ATTENTION.

See Material Safety Data Sheet (MSDS) for further information.

Proposition 65
This product contains materials which are known to the state of California as known to cause cancer, birth defects, or other reproductive harm.

VOC Content
Self leveling grade: 196 g/L or 1.7 lbs. of VOC per gallon of coating less water and exempt solvents.
Flash/slope grade: 203.3 g/L or 1.7 lbs. of VOC per gallon of coating less water and exempt solvents.

Warning
Sonoguard® Top Coat contains mineral spirits, talc, calcium sulfate, methylene bis-(4-cyclohexyl-isocyanate), may also contain titanium dioxide, and silicon dioxide.

Risks
Combustible liquid and vapor. May cause skin and eye irritation. May cause dermatitis and allergic responses. Potential skin and/or respiratory sensitizer. Inhalation of vapors may cause irritation and intoxication with headaches, dizziness and nausea. Ingestion may cause irritation. Reports associate repeated or prolonged occupational overexposure to solvents with permanent brain, nervous system, liver and kidney damage. INTENTIONAL MISUSE BY DELIBERATELY INHALING THE CONTENTS MAY BE HARMFUL OR FATAL.

Precautions
KEEP OUT OF THE REACH OF CHILDREN. KEEP AWAY FROM HEAT, FLAME AND SOURCES OF IGNITION. Keep container closed when not in use. Use only with adequate ventilation. Avoid contact with skin, eyes and clothing. Wash thoroughly after handling. Avoid breathing vapors. Use impervious gloves, eye protection and if the TLV is exceeded or if used in a poorly ventilated area, use NIOSH/MSHA approved respiratory protection in accordance with applicable federal, state and local regulations. Empty container may contain explosive vapors or hazardous residues. Do not cut or weld on or near empty container. All label warnings must be observed until container is commercially cleaned or reconditioned.

First Aid
In case of eye contact, flush thoroughly with water for at least 15 minutes. SEEK IMMEDIATE MEDICAL ATTENTION. In case of skin contact, wash affected areas with soap and water. If irritation persists, SEEK MEDICAL ATTENTION. Remove and wash contaminated clothing. If inhalation causes discomfort, remove to fresh air. If discomfort persists or any breathing difficulty occurs, or if swallowed, SEEK IMMEDIATE MEDICAL ATTENTION.

See Material Safety Data Sheet (MSDS) for further information.

Proposition 65
This product contains material listed by the state of California as known to cause cancer, birth defects, or other reproductive harm.

VOC Content
209 g/L or 1.75 lbs. of VOC per gallon of coating less water and exempt solvents.

For medical emergencies only, call ChemTrec (1/800/424-9300)