



## **General Instruction (GI):**

**GW-6-5**

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### **GACOFLEX™ SILICONE COATING - SPRAY GUIDE**

#### **1. OVERVIEW**

This guide covers handling and airless spray application of GacoFlex Silicone single component, silicone coatings. GacoFlex Silicone polymerizes through chemical reaction with air borne moisture yielding tough, waterproof, weather-resistant elastomeric films. Airless spray is an effective method of application particularly on large areas and irregular or vertical surfaces. Air-atomized application is not recommended.

Personnel using this product should familiarize themselves with procedures for personal safety, workplace precautions, and equipment operation. Refer to Product Data Sheet and Material Safety Data Sheet for product information. Refer to manufacturer's instructions for spray equipment operation, maintenance and safety..

#### **2. SAFETY EQUIPMENT AND VENTILATION**

Some GacoFlex Silicone may contain flammable solvent. Spray application creates finely atomized particles and vapors, which dictate specific procedures to minimize health and safety risks.

##### **a. Protective Equipment**

- Chemical exposure levels will be below the OSHA permissible limits during most outdoor spraying applications therefore respiratory protection may not be required. Air monitoring should be performed by a qualified person to identify the hazards. Should respiratory protection be required, use a NIOSH approved air-purifying or positive pressure supplied air respirator.
- Because of the potential inhalation of atomized particulates recommended practice is anyone within 15 ft (4.6 m) of the application to use a dust mask.
- Chemical protective clothing
- Chemical protective gloves
- Safety Glasses

##### **b. Indoor Spraying Precautions**

- Isolate the area to be sprayed from the rest of structure
- GacoFlex Silicone may contain flammable solvents, which evaporate into the air during application and cure cycle. Follow Gaco Western Fire and Explosion Prevention instructions found in Gaco Western Safety and Storage document.
- Spray only in well-ventilated areas.
- Explosion-proof equipment, capable of keeping vapor concentration below the LEL, must be used. The environment must be monitored to assure compliance.
- Air from spray area must be exhausted outdoors in a manner that prevents return through windows, doors or intake vents.
- Keep spectators and other personnel away from spray area.
- Be sure to take proper precautions to not spray over unprotected energized lighting or electrical outlets. Doing so could be a fire hazard. Electrical wiring and conduit can be sprayed on as long as open energized circuits are protected.

##### **c. Outdoor Spraying Precautions**

- Rope off the area within 150 ft (45.72 m) of spray area.
- Seal off ventilation intakes within the affected area.
- Use windbreaks, where necessary to confine spray mist and avoid damage to nearby surfaces due to overspray or drift.
- Keep spectators and personnel away from spray area. Keep spectators and other personnel away from spray area.

- Be sure to take proper precautions to not spray over unprotected energized lighting or electrical outlets. Doing so could be a fire hazard. Electrical wiring and conduit can be sprayed on as long as open energized circuits are protected.

### 3. STORAGE AND HANDLING

#### a. Storage

- Keep containers tightly closed. Store in a dry, cool place away from heat, sparks, open flames and moisture.
- For cold weather application, keep material stored above 65 °F (18 °C).
- Hot weather application will result in shortened pot life.
- Store materials out of sun and below 80 °F (26 °C).

#### b. Handling

- Each GacoFlex Silicone coating product is unique. Components of various products cannot be intermixed. Separate products at the jobsite to avoid mixing errors.
- Protect from freezing during shipping and storage.

#### c. Mixing

- Settling or separation may occur from storage.
- Mix material before using to assure uniform consistency. Use folding blade-type mixer for closed head drums.
- Ground container and equipment to prevent accumulation of static charge.
- Place a small amount of GacoFlex T5135 Silicone Solvent or T5110 VOC Compliant Silicone Solvent on top of mixed material to prevent formation of "skin."

#### d. Thinning

- Thinning GacoFlex Silicone is not recommended.
- GacoFlex T5135 Silicone Solvent or T5110 VOC Compliant Silicone Solvent is recommended to clean equipment. Only use Gaco Western Silicone Solvents. Other solvents may contain alcohol or other contaminants, which will adversely affect coating characteristics, resulting in decreased physical properties and weather resistance or potential damage to spray equipment.

### 4. SPRAY EQUIPMENT

Airless spray equipment generates very high fluid pressure. Spray equipment must be properly maintained and operated. Any misuse of spray equipment or accessories (such as over-pressurizing, modified parts, or worn or damaged parts) can result in serious bodily injury, fire, explosion or property damage. Read and follow the equipment manufacturer's instructions and recommendations.

#### a. Airless Spray Pump

- Airless spray pump must have 5,950 psi (410 bar) minimum output pressure rating and adequate delivery volume to support the spray tip orifice rating. High-pressure airless sprayers with a higher maximum pressure capability will allow the use of spray hose lengths greater than 250 ft (76.2 m).
- **Graco™ Airless Sprayers:**

| Part #        | Name  | Rated PSI | GPM | LPM  |
|---------------|-------|-----------|-----|------|
| K70NH1        | X70   | 7250      | 2.9 | 11.0 |
| 16U281/L145C1 | GH933 | 7250      | 2.5 | 9.5  |

**NOTE:** Airless sprayers not listed have not been evaluated. The preceding information can be used as a reference for assembling an alternative equipment system.

#### b. Sprayer Supply

- Transfer pump is preferred to assure positive supply of coating to the airless pump. 5:1 fluid to air ratio transfer pump of divorced design will supply coating from drums without cavitation and resulting premature packing wear.

**c. Airless Spray Hose**

Airless spray hose must be a grounded nylon tube paint hose, rated for use at maximum pressure produced by the spray pump. Use only electrically grounded hose designed for paint and solvent. Never exceed maximum working pressure of hose or fittings.

**NOTE:** To help prevent hose plugging problems, use only a moisture resistant hose when spraying.

- The larger the hose diameter, the less pressure drop will occur between the airless pump and spray gun. There is 2.5 times less pressure drop with a ½ inch (13 mm) i.d. hose, compared to 3/8 inch (9.5 mm) i.d. hose.
- Maximum hose length can be as long as 362 ft (110.3 m), including whip hose. Hose will consist of a 250 ft (76 m), ¾" in (20 mm) hose and 50 ft (15 m) of a ½" in (13 mm) hose.
- A whip hose, up to 12 ft (3.7 m) in length, and gun swivel, are recommended to control spray and reduce operator fatigue. In some conditions, the whip hose may cause unsatisfactory spray patterns. Conditions that may cause this are colder temperatures or too long a spray hose.
- Best performance can be achieved if any fittings that could restrict flow in the pump or spray hose are replaced. For example, an inline filter.

**d. Spray Tip Selection**

Spray tip selection is based upon the material delivery volume and spray pattern desired:

- The orifice size of a spray tip determines material delivery volume. The larger the orifice, the lower the pressure output which could result in unsatisfactory spray pattern. The fan width of a spray tip determines the pattern size. The higher the temp of the product combined with a shorter hose and more pressure at the rig could all allow for a bigger spray tip and more output.
- Recommended tip size is 0.031 in (.78 mm) with a 631 tip being ideal for spraying roofs. Depending on hose length, roof height, temperature, etc, the tip size could vary from 0.029 in (0.74 mm) to 0.035 in (0.90mm) (629 – 635).
- Filters should be removed.
- Spray application rate is typically from 0.75 to 3.0 gal /100 ft<sup>2</sup> (2.8 L to 11.4 L / 9.3 m<sup>2</sup>) depending on the substrate and specification. Please see Gaco Western specification for recommended application rates.

Tip wear and replacement:

- Gaco's Spray Package for Silicone includes 3 spray tips: 627,629,631 Multiply the first digit x 2 for fan width, the last 2 digits are the orifice size.
- Examples:
  - 0.0627 (12" (304 mm) spray pattern @ 10-12" (254-304 mm) from surface, flow rate GPM = 0.74 (LPM = 2.8))
  - 0.0629 (12" (304 mm) spray pattern @ 10-12" (254-304 mm) from surface, flow rate GPM = 0.90 (LPM = 3.4))
  - 0.0631 (12" (304 mm) spray pattern @ 10-12" (254-304 mm) from surface, flow rate GPM = 1.03 (LPM = 3.9))
- As the tip wears, the orifice size increases and the spray pattern decreases. The more the tip wears, the more material gets applied, resulting in uneven mil build, plus it requires more labor because the spray pattern gets smaller.
- GacoFlex Silicone Coating is a very viscous material and tips should be monitored and changed out as a regular maintenance item. After spraying 3-4 drums, do a spray pattern test by bringing unit up to pressure and spraying at 10-12" from surface to check for fan. If you have lost more than 25% of pattern dispose of tip.

**e. Filters**

- Filters should not be used in the gun or lowers.

**f. Spray Application Rate**

- Select a spray tip that is within the performance capacity of the airless spray pump. The larger the spray tip, the greater the pressure drop. Long hose length and cold material will decrease material delivery volume and fluid pressure at the spray tip.
- If the spray pattern has fingers or pulsates, change spray tips to reduce the size of the spray orifice. This will decrease material delivery volume and increase pressure.

**5. APPLICATION**

**a. Climate Conditions**

Rain, fog, dew, and frost may react adversely, affecting adhesion and physical properties of coating. Do not apply if any of these conditions exist or will exist immediately after application. The substrate must be dry, clean and sound at the time of application. At temperatures below 65 °F (18.3 °C), store and maintain material temperature at 65 °F (18.3 °C) or above in the container. Application is possible with ambient temperatures down to 33 °F (0.56 °C). At temperatures above 85 °F (29.5 °C), reduce the application rate on vertical or irregular surfaces to prevent sags or runs.

**NOTE:** Do not apply if ambient, material or substrate temperatures are below 33 °F (0.5 °C).

**NOTE:** Do not apply by airless spray when air temperature is within 5 °F (2.8 °C) of the dew point.

**b. Spraying Technique**

Hold the spray gun perpendicular to the surface at a distance of 12 - 18 in (305 - 457 mm). While triggering the spray gun, move it at a rate to produce the desired coating wet mil thickness without thin spots or "holidays." Spray technique should include a "half lap" technique where each spray pass is overlapped 50% for uniform coverage. Check applied film thickness using a wet mil gauge.

Use the lowest fluid pressure that will provide a uniform spray pattern without fingering. When greater material coverage is desired, use a larger spray tip orifice size instead of increasing pressure. Too high of pressure could cause excessive overspray.

Spraying must be organized to maintain constant material flow through airless spray hoses. Coating viscosity will increase rapidly in airless spray hoses if the hoses are exposed to direct sun or high temperatures.

Plan the application sequence to provide for best production and limited down time. Rotate spray mechanics as needed to allow for continuous production. Material must be flushed from equipment when down time exceeds pot life.

Allow a minimum of two (2) hours between coats for cure and solvent evaporation. Refer to Product Data Sheet for specific information for specific conditions.

**c. Clean-Up**

- GacoFlex T5135 Silicone Solvent or T5110 VOC Compliant Silicone Solvent is recommended to clean equipment. Only use Gaco Western Silicone Solvents. Other solvents may contain alcohol or other contaminants, which will adversely affect coating characteristics, resulting in decreased physical properties and weather resistance or potential damage to spray equipment.
- Troubleshooting information presented below applies to all Gaco Silicones. Product Data Sheets and manufacturer's equipment operation manual should be referred to for additional information.

**d. Troubleshooting**

| CONDITION                         | AREAS TO CHECK                                                                                                                                                | CORRECTIVE ACTION                                                                                                                                                                                         |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Poor Spray Pattern</b>         | <ol style="list-style-type: none"> <li>1. Too large or worn spray tip</li> <li>2. Low fluid pressure</li> <li>3. Cold material</li> </ol>                     | <ul style="list-style-type: none"> <li>✓ Replace with new or smaller tip</li> <li>✓ Increase pump pressure</li> <li>✓ Warm to above 60 °F (16 °C)</li> </ul>                                              |
| <b>Pulsating Spray Pattern</b>    | <ol style="list-style-type: none"> <li>1. Too large or worn spray tip</li> <li>2. Inadequate material supply</li> <li>3. Inadequate compressed air</li> </ol> | <ul style="list-style-type: none"> <li>✓ Replace with new or smaller tip</li> <li>✓ Check suction hose/transfer pump</li> <li>✓ Check and clear</li> <li>✓ Provide more air or use smaller tip</li> </ul> |
| <b>Sags/Runs on Vertical</b>      | <ol style="list-style-type: none"> <li>1. Too much material per coat</li> </ol>                                                                               | <ul style="list-style-type: none"> <li>✓ Reduce application rate per coat (more coats may be required)</li> </ul>                                                                                         |
| <b>Run-off High on Spray Foam</b> | <ol style="list-style-type: none"> <li>1. Material or substrate too warm</li> </ol>                                                                           | <ul style="list-style-type: none"> <li>✓ Reduce application rate or wait for cooler conditions</li> </ul>                                                                                                 |
| <b>Foamy or Pin-Holed Coating</b> | <ol style="list-style-type: none"> <li>1. Wet Substrate</li> <li>2. High humidity / near dew point</li> <li>3. Rain/dew on uncured coating</li> </ol>         | <ul style="list-style-type: none"> <li>✓ Wait for surface to dry</li> <li>✓ Wait for acceptable conditions</li> <li>✓ Wait for acceptable conditions</li> </ul>                                           |