



## IMTECH ADHESIVE SYSTEMS

### IMTECH STR-2100

IMTECH STR-2100 is a two-part chloroprene rubber adhesive system, specially formulated to provide outstanding performance characteristics when used in the following applications:

- Rubber to rubber bonding
- Rubber to fabric (Conveyor belt splicing)
- Rubber to metal (rubber lining applications)
- Pulley lagging

**STR-2100 contains no chlorinated hydrocarbons**, is easy to apply and environmentally friendly.

#### COVERAGE:

As a guide, allow 0.8-liter of cement for each 7.5 square feet of lining. This is based on applying two coats of cement to the rubber and two coats to the metal substrate. The 0.8-liter container will provide enough cement to cover 7.5 square feet x 4 coats of cement or 10 square feet x 3 coats of cement (30 square feet total). STR-2100 cement is available in 0.8-liter, 3.2-liter and 200-liter kits (inclusive of the hardener).

### IMTECH STR PVC

IMTECH STR PVC is a two-part contact adhesive for cold bonding PVC, plastics and polyurethane.

**STR PVC contains no chlorinated hydrocarbons**, is easy to apply and environmentally friendly.

#### COVERAGE:

As a guide, allow 0.8-liter of cement for each 7.5 square feet of material. This is based on applying two coats of cement to each surface. The 0.8-liter container will provide enough cement to cover 7.5 square feet x 4 coats of cement or 10 square feet x 3 coats of cement (30 square feet total). STR PVC cement is available in 0.8-liter, 3.2-liter and 200-liter kits (inclusive of the hardener).

### IMTECH STR-2100 METAL PRIMER

IMTECH STR-2100 METAL PRIMER is used in conjunction with the STR-2100 cement to provide optimum bonding of the lining to the steel. It is recommended that the metal primer be applied to the steel substrate immediately after the metal cleaning or grit blasting process. When blasted parts are to be left for a few days prior to lining, the metal primer will protect the steel surface from oxidation when stored in a suitable environment.

#### COVERAGE:

A 0.8-liter container will provide coverage for 125 square feet. STR-2100 metal primer is available in 0.8-liter and 3.2-liter packaging.



## **APPLICATION AND PREPARATION PROCEDURE**

### ***RUBBER LINING AND CONVEYOR PULLEY & LAGGING SYSTEMS***

The key to a successful bonding process is in the preparation of the surfaces to be covered.

The following information details the steps to be taken to achieve the optimum results.

#### **RUBBER to METAL – SURFACE PREPARATION**

- Remove all weld splatter, sharp edges or irregularities by surface grinding. Weld seams etc, should be 1/8" or less.
- De-grease the surface if contaminated with oil or grease by solvent washing.
- Blast cleaning of the surface to NACE 1. White metal blast class 2.5 is standard procedure. Grinding using a 16-grit disc grinder or a steel grinding disc at 5000 r.p.m. will achieve an acceptable surface texture. A crosshatch pattern surface grind is preferred. (See attached blasting specs.)
- Remove all blast residues by brushing or vacuuming. Take care not to contaminate the surface after cleaning. If necessary, cover the prepared surface.
- When bonding rubber to metal, prime the surface with STR-2100 Metal Primer immediately after blasting and cleaning is complete. Apply a thin coat of primer evenly, using a brush or short nap roller, taking care to avoid runs or puddles.
- The primed surface must be allowed to dry thoroughly, about 30 to 60 minutes depending on the environmental conditions.
- NOTE: Primed metal surfaces can be held for as long as 7 days when properly stored away from direct sunlight, and in a clean and dry environment. Surfaces primed with STR-2100 adhesive/hardener mixture should be processed within 24 hours.

#### **ADHESIVE/HARDENER PREPARATION**

- Mix the adhesive/hardener together. Mix one bottle of 30gram hardener per 0.8-liter of adhesive.
- A thorough mix is required by stirring not shaking. STR-2100 is supplied in a wide mouth container for ease of mixing and application.



## IMTECH ADHESIVE SYSTEMS

### COATING

- Apply a uniform first coating adhesive to the primed metal surface and allow it to dry.
- At the same time apply a coat of adhesive to the rubber surface using a stiff brush. With a circular motion, scrub or work the adhesive into the rubber applying a uniform coating and allow it to dry.
- NOTE: If the surface of the rubber has already been primed, as with the IMTECH Lagging systems, apply the adhesive coating with a brush or roller with a rolling or painting action. DO NOT SCRUB the adhesive into the primed surface.
- Once the primed surfaces are dry, apply a second tie coat to both surfaces. When the surfaces are dry to a tack; normally this takes about 8 to 12 minutes; the two surfaces can be bonded together.

### BONDING

- Place the rubber onto the steel surface. Roll or stitch the rubber onto the steel, applying pressure to ensure maximum surface contact. Pay particular attention to joints and edges and avoid air bubbles. A 2" roller or rubber mallet can be used to assist in the bonding process however care should be taken to avoid creating excessive deformation of the rubber. If the coated surfaces become too dry, apply an additional coat as previously detailed.

### JOINT SEALING – STR Sealant

- For the sealing of joints against moisture and material fines when rubber lining or pulley lagging, we recommend the use IMTECH STR Sealant. This product has excellent adhesion to steel and rubber and outstanding wear resistance. It is ideally suited in the lagging of crown faced pulleys. Technical specifications are available upon request.

### TYPICAL BONDING MISTAKES

Bonding when the adhesive is too **DRY**.

- *This is the most common cause of bond failure.* The bond will be poor and spotty. If this occurs, re-coat the surfaces to be bonded as recommended in the application procedures.

Bonding when the adhesive is too **WET**.

- Test the coated surface with the back of the finger. It should feel tacky, but not leave a residue on your finger. If the surfaces are placed together when the surfaces are too wet, the initial bonding strength will be poor; however, the adhesive/hardener mixture will cure, as the solvent in the adhesive evaporates.

There are times when the bonding process is carried out prior to the tack phase of the bonding process. This is a controlled lining procedure and is normally carried out when the items to be lined are large; such as in a tank or chute lining; and are not to be



## IMTECH ADHESIVE SYSTEMS

placed into service for some time. From a practical standpoint, when the lining of large surface areas is to be carried out, the application of the lining whilst the adhesive is still moist, will allow the rubber lining to be re-positioned if needed. Once the lining is in place, pressure must be applied as detailed in the application procedure. If further technical assistance is needed in carrying out this process, please contact your rubber product specialist.

### Bonding with *inadequate pressure*.

- Sufficient pressure should be applied to ensure maximum surface contact. *The ultimate strength of the bond is improved as surface contact pressure is increased.* There are a number of ways to apply surface pressure. The addition of continuous weight or pressure is advantageous where insufficient pressure can be applied by hand. In such cases, items may be left to stand under pressure, if necessary, overnight.

### APPLICATION LIMITATIONS USING CHEMICAL ADHESIVES

- Normally the use of cold vulcanizing or chemical adhesive systems is not recommended when the surface temperature of the substrate is below 40° F or above 110°F, or the relative humidity exceeds 85%. Where operating conditions exceed these norms contact your technical representative for consultation.
- When applying rubber to metal, the following conditions should be considered:
  - Dew point
  - Metal temperature
  - Ambient temperature
  - Relative humidity

As part of a QA/QC program, the above conditions should be monitored and if needed, recorded. Generally, the surface temperature of the metal substrate should be a minimum of 5°F above the dew point.

- Drying times of the adhesives will vary considerably depending on the prevailing environmental conditions. Drying times, as stated in the application procedure section, are based on the results achieved at room temperature, 70°F.
- Adequate ventilation must be maintained when using primers and adhesives in a confined space. *It is the responsibility of the applicator to ensure that the necessary safety precautions confined entry certification and manufacturer's recommendations are followed at all times.*

### STORAGE OF RUBBER PRODUCTS

- Store all rubber products in a clean, dry place and away from direct sunlight.
- Recommended storage temperature, 20° C or 70° F.
- Keep away from oils and grease.



## HOW TO SPECIFY BLASTING

Your coating supplier will always designate the degree of surface preparation required for his materials. The three basic standards used to describe surface preparation are the Steel Structures Painting Council (SSPC) "Surface Preparation Specifications", the National Association of Corrosion Engineers Standards (N.A.C.E.) and the Swedish Pictorial Standards. Basically their definitions are:

SSPC	SWEDISH*	NACE	DESCRIPTION
SP 1, Solvent Cleaning	N/A	N/A	Removal of oil, grease, dirt, soil and contaminants by cleaning with solvent, vapor, alkali, emulsion or steam.
SP 2, Hand Tool Cleaning	St 2	N/A	Removal of loose rust, loose mill scale and loose paint by hand chipping, scraping, sanding and wire brushing.
SP 3, Power Tool Cleaning	St 3	N/A	Removal of loose rust, loose mill scale, and loose paint by power tool chipping, descaling, sanding, wire brushing and grinding.
SP 5, White Metal Blast Cleaning	Sa 3	1	Removal of all visible rust, mill scale, paint and foreign matter by blast cleaning.
SP 6, Commercial Blast Cleaning	Sa 2	3	Blast cleaning until at least two-thirds of each square inch is free of all visible residues.
SP 7, Brush-Off Blast Cleaning SP 8, Pickling	Sa 1	4	Blast cleaning of all except tightly adhered residues of mill scale, rust, and coatings. Complete removal of rust and mill scale by acid pickling, duplex pickling, or electrolytic pickling.
SP 10, Near White Blast Cleaning	Sa 2-1/2	2	Blast cleaning until at least 95% of each square inch is free of all visible rust, mill scale, paint and foreign matter.
SP 11-87T, Power Tool Cleaning to Bare Metal	N/A	N/A	Removal of all visible rust, mill scale, paint and foreign matter using power tools and producing a minimum profile of 1 mil.

\*Also SSPC-Vis 1 Standard



## **ABRASIVE PROFILE COMPARATIVE CHART**

The following chart should be used for approximating the abrasive size required to obtain a specified anchor pattern. The standard metal used to obtain these results was hot rolled steel with tightly adhering mill scale. The resulting depth of anchor pattern will vary with the method used for measuring depths as well as any one of numerous other variables (type and hardness of steel, thickness of mill scale, degree of cleaning specified, etc.) This information can be used for centrifugal wheel as well as pressure blasting. Pressure blasting should be done using 90 – 100 p.s.i. nozzle pressure. The depth of anchor pattern used in this chart is an average and not a minimum or maximum depth obtainable. Consult local abrasive suppliers for specific technical data.

### 1 Mil Profile

30/60 Mesh Silica Sand  
G-80 Steel Grit  
S-110 Steel Shot\*  
80 Mesh Garnet  
100 Grit Aluminum Oxide  
Clemtex #4  
Black Beauty 3060

### 1.5 Mil Profile

16/35 Mesh Silica Sand  
G-50 Steel Grit  
S-170 Steel Shot\*  
36 Mesh Garnet  
50 Grit Aluminum Oxide  
Clemtex #3  
Black Beauty 3060

### 2 Mil Profile

16/35 Mesh Silica Sand  
G-40 Steel Grit  
S-230 Steel Shot\*  
36 Mesh Garnet  
36 Grit Aluminum Oxide  
Clemtex #3  
Black Beauty 2040

### 2.5 Mil Profile

8/35 Mesh Silica Sand  
G-40 Steel Grit  
S-280 Steel Shot\*  
16 Mesh Garnet  
24 Grit Aluminum Oxide  
Clemtex #2  
Black Beauty 2040

### 3-4 Mil Profile

8/20 Mesh Silica Sand  
G-25 Steel Grit  
S-330 or 390 Steel Shot\*  
16 Mesh Garnet  
16 Grit Aluminum Oxide  
Clemtex #2  
Black Beauty 1240

\*Steel shot alone will not give a good angular anchor pattern and should be used in combination with steel grit for best results.