



PREFACE

It is quite common for questions to be raised regarding various aspects of the application of IMTECH Cold Bonding Adhesive Systems and associated products such as Metal Primer and Sealant. We offer this bulletin to assist you in answering your most-asked questions. The key to a successful bonding process is in fully understanding the application procedures and limitations of chemical adhesives, both in the workshop and in the field. This bulletin is intended to be used in conjunction with the “application and preparation procedure” found in your IMTECH Technical Manual.

1) STORAGE OF CHEMICAL ADHESIVES AND RUBBER PRODUCTS:

- a) All adhesives and rubber products must be stored in a cool and dry environment, away from heat and direct sunlight.
- b) When stored as recommended, 70° F, the shelf life of the cement would be approximately 4years.

2) MIXING:

- a) When mixing the hardener with the cement and when applying the STR Metal primer, it is important to thoroughly STIR the mixture. DO NOT shake it. STR-2100 cement and metal primer is supplied in a large mouth container, which makes this a simple process. This mixing process is very important to the resultant bonding strength of the lining or lagging to the metal. Both the cement and metal primer contain solids which, over time, separate from the solvent base. Mixing disperses the solids evenly to achieve a homogenous product.
- b) Once the hardener has been mixed in with the cement, the pot life is approximately 2 hours.

3) DRYING TIMES:

- a) Many difficulties experienced in carrying out a successful bonding process in low temperature conditions arise from incorrectly determining the appropriate drying times of the adhesives (both primer coatings and cement application) when lining or lagging.



Cold Bond Adhesive Overview

- b) In any situation, it is imperative that the metal primer and the prime coat of cement be thoroughly dry prior to any further process being carried out.
- c) We recommend a minimum drying time of one hour for each application. This drying time may be reduced at the discretion of the applicator when monitoring the work place conditions

4) APPLICATION PARAMETERS:

- a) When using IMTECH STR-2100 + hardener and STR metal primer, the following environmental conditions must be considered and will be described accordingly:
 - i) Metal Temperature
 - ii) Dew Point
 - iii) Relative Humidity and Ambient Temperature

METAL TEMPERATURE:

- Primers and adhesives should not be applied when lining or lagging where the surface temperature of the metal substrate is below 50° F (10° C) or above 115° F (45° C) or when the humidity is above 85%.
- Where conditions are below the recommended temperatures, the cement will tend to thicken and gel. To return the product to a workable state, simply store the adhesive at room temperature for a period of time to allow the solvent/rubber mixture to return to its liquid state. The thickening or gelling of the product will have no adverse effect on the adhesive properties or performance characteristics.

DEW POINT:

- As a general rule, the surface temperature of the metal should be a minimum of 5° above the dew point.
- As a guide, the attached dew point chart can be used to determine the working parameters.



Cold Bond Adhesive Overview

HUMIDITY AND AIR TEMPERATURE:

- The drying times of the primer and adhesive coatings will vary considerably depending on the amount of moisture in the air and the air temperature. The standard drying times referred to in the application bulletin are based on results achieved at room temperature or 70° F (20° C).
- Drying times and curing rates of the cement are more adversely affected in low temp, high humidity conditions.
- Where the air temperature is high and the humidity is high, the use of a fan to increase the air circulation at the workplace will greatly improve the chances of a more rapid evaporation or flashing off of the solvent.

5) WORKPLACE ENVIRONMENT CONTROLS:

- a) To ensure a professional and high quality installation, it is imperative to provide suitable protection from the elements, not only for the product but also for the technician. Conditions vary greatly from season to season and country to country. The use of protective covers such as awnings and tarpaulins are basic to this issue. In many cases portable framework is used to provide adequate protection against wind and weather.
- b) One option that is commonly used is a protected area or splicing station that is a permanent or semi-permanent structure. This is the optimum and is normally found at the larger operating mines and industries where the process equipment is critical to the continuous operation of the plant. There are a number of options available to us in controlling the workplace condition, some of which are as follows:
 - c) Quartz halogen lighting
 - d) Propane heaters - forced air
 - e) Propane infra red heaters
 - f) Infra red drying hoods
 - g) The use of diesel fired heaters is discouraged, as the emissions are detrimental to the surface prep and adhesives. Whichever system is used, care must be taken to avoid the possibility of any reaction with the solvents. Adequate ventilation must be maintained to prevent the concentration of solvent fumes during the application process. It is important to remember that the solvent vapor is heavier than air and therefore will flow downward from the point of application. Extraction fans must be placed at floor level to be effective.



Cold Bond Adhesive Overview

- h) Once the workplace is suitably prepared, the ambient and surface temp must be maintained for the duration of the lining or lagging process.
- i) In the interest of safety, in all cases strict adherence to the MSDS data and safety regulations must be practiced.

6) METAL PRIMER:

- a) STR Metal primer serves two major functions in the bonding of rubber to metal:
- b) Prevents surface oxidation when applied immediately after the metal blast cleaning process.
- c) Improves the bonding strength of the cement to the steel by at least 15%.
- d) Remember to thoroughly mix this product prior to application. If this is not done, you will not achieve a successful bond. Typically, this will manifest itself where the cement does not stick to the primer, or where the primer/cement mixture comes off the metal, leaving bright steel.

7) SUMMARY:

- a) STR 2100 cement and STR Metal primer are widely used, not only in the United States, but around the world, in varying climates and operating conditions with complete success. The manufacturing process is considered to be state-of-the-art and in accordance with ISO 9002 standards.
- b) The system is easy to apply, and when used in accordance with our application procedures and recommendations, will ensure a high quality bonding process with outstanding results.