Rely®
Flat Proofing Polymer

SAFE USE & HANDLING GUIDE

CARPENTER
Tire Products Division

PREVENT INJURIES AND COSTLY DAMAGE.
READ, UNDERSTAND, AND FOLLOW THIS GUIDE.

Contents

About This Guide

This booklet will serve as your technical guide for the safe use and handling of the chemicals used to make Carpenter Co.'s Rely® Flat Proofing System ("Rely® System"), including important health and safety information. As you read this booklet, you will notice references to the Material Safety Data Sheet (MSDS) for each chemical. You will want to refer to these sheets for more specific health and safety information.

Everyone involved in your tire fill operations should read this booklet and the MSDS' before using these chemicals and should be trained and supervised in their proper use and handling. In addition, everyone should also read and familiarize themselves with the Rely® INTELLI-PUMP™ and Lincoln Pneumatic Pump Owner's Manuals. By following the guidelines in this booklet, the MSDS' and the Owner's Manuals, you will find the Rely® System to be both safe and efficient. If you have any questions, please call 1-800-825-6836 or 1-886-290-RELY (7359).

The team at Carpenter Co. is committed to giving you prompt, personal service.

About The Chemicals

The Rely® System consists of two chemicals:

Rely® Component A

Rely® Component B

We'll refer to Components A and B by those names throughout this booklet, even though they may have other product names associated with them, such as T-8, T-15, T-25, T-30 and T-49. For more specific information on each, refer to the applicable MSDS.

Before we look at the general characteristics of the chemicals, please note the rating scale below which describes the hazards associated with everyday use and handling of the chemicals. Three categories are used: Health, Flammability, and Reactivity. Each chemical has been rated using the standards developed for the Hazardous Materials Information System (HMIS). The ratings are:

0 - Minimal Hazard
1 - Slight Hazard
2 - Moderate Hazard
3 - Serious Hazard
4 - Severe Hazard

Rely® Component A

Rely® Component A is a petroleum mixture which contains toluene diisocyanate (TDI). It will react with water, sodium hydroxide, ammonia, primary and secondary amines, acids and alcohols. Reactions can range from mild to violent and may cause a buildup of pressure forceful enough to rupture the container. For additional information on Rely® Component A, see "Maintaining Healthy Conditions", page 6.

HMIS Hazard Code

Health	T-8, T-15, T-25, T-30, T-33	2 *
Health	T-49	3 *
Flammability		1
Reactivity		1

*Denotes Chronic Health Hazard

Rely® Component B

Rely® Component B is a polyol petroleum mixture. It reacts with isocyanates. Component B is stable; however, it may be corrosive to copper-based metals. For additional information on Rely® Component B, see "Maintaining Healthy Conditions", page 6.

HMIS Hazard Code

Health	2
Flammability	1
Reactivity	0

Isopropyl Alcohol

Isopropyl Alcohol can be used to flush material out of the mixer and fill hose. It is a stable material that presents little reactivity hazard, but keep it away from sparks, open flame or sources of heat. The liquid and vapors from the solvent are **highly flammable** and can be easily ignited. This material should be stored in small quantity containers with a pressure release valve and should be kept closed when not in use. It should be used with adequate ventilation and in accordance with local building codes.

HMIS Hazard Code

Health	1
Flammability	3
Reactivity	0

Installing the System

Ventilation

Adequate air circulation is required in order for the Rely® System to operate safely. **Do not** operate the Rely® System in an enclosed, poorly ventilated area. Air circulation should be maintained in accordance with local building code requirements or such as found in BOCA, ICBO or SBCCI. If your work area maintains 6-10 air exchanges per hour, the level of vapors from your Rely® System should remain below the OSHA limits (as defined on page 6). However, regular testing should be performed to make certain that the applicable requirements are being met.

If you are using a circulating fan or exhaust vent to improve air circulation, it should be placed behind or to the side of the work area to direct air flow away from the operator. It should not, however, be directed at other workers situated nearby. Exhaust vents should be placed to draw vapors away from the operator's work zone. Of course, each facility is different. If you have questions about ventilation, you should call a qualified engineer.

Smoking

Smoking is not allowed in the processing and curing areas. Smoking around tire fill material or isopropyl alcohol increases the risk of fire. NO SMOKING and FLAMMABLE MATERIALS warning signs should be posted in the processing and curing areas. See page 12 for further discussion regarding the risk of fire.

Maintaining Healthy Conditions

Exposure Limits

In the United States, exposure limits are recommended by the American Conference of Government Industrial Hygienists (ACGIH) and established by the Occupational Safety and Health Administration (OSHA). If a chemical has an established exposure limit, then the concentration of that chemical in the operator's breathing zone must be maintained below the limit.

The ACGIH may recommend one or more of the following exposure limits: a ceiling value (C), a short-term exposure limit (STEL), or a time-weighted average (TWA). Each of these exposure limits is defined by ACGIH as threshold limit values (TLV).

The TLV-STEL is the maximum concentration to which workers may be exposed continuously for a short time, usually 15 minutes or less. The TLV-C (ceiling) is the vapor concentration that should not be exceeded during any part of the working exposure. The ACGIH TLV-TWA is the time-weighted average concentration for the normal eight-hour work day. Exposures above the limit should be offset by equivalent time periods below the limit and must not exceed the STEL or ceiling value.

OSHA establishes exposure limits by defining permissible exposure limits (PEL). The PEL is a legally enforceable limit and may be either a ceiling (PEL-C), a short term exposure limit (PEL-STEL), or a time weighted average value (PEL-TWA).

Isocyanates

All Rely® Component A formulations contain TDI. Maximum exposure levels for TDI are:

OSHA PEL	ACGIH TLV
C = 0.02 ppm	TWA = 0.005 ppm
	STEL = 0.02 ppm

In order to accurately measure isocyanate vapor levels during normal use of the Rely® System, you should arrange to have your workplace monitored by an industrial hygiene consultant. Your Carpenter Co. representative can assist you in this effort.

In addition to TDI, which is found in all Rely® Component A formulations, other substances for which exposure limits have been established may be present in Rely® Component A and B formulations. Consult your MSDS to see which of these are present in your system.

Aromatic Oils

Oils similar to those found in both Rely® Components A and B have been shown to cause skin cancer in laboratory rats when applied in excessive dosages. Please review precautionary measures for skin protection as outlined on page 8.

Amine Catalysts

Each Rely® Component B formulation contains an amine catalyst. Exposure limits have not been established for the catalysts used in the Rely® System.

Inhalation Sensitivity to Chemicals

A small percentage of the general population is born with a hypersensitivity to the isocyanate chemicals used in the Rely® System, which causes them to have an allergic reaction upon exposure to these chemicals. In addition, others who have experienced repeated overexposure to the chemicals may develop a sensitization to the chemicals over time. If a person has become sensitized, exposure to isocyanate vapors, even at concentrations well below the TLV or PEL values, can result in the person developing symptoms of asthma or respiratory distress. These symptoms may appear immediately or may be delayed for several hours.

Processors who have or develop sensitivity to these chemicals **should be reassigned immediately**. In addition, they should be restricted from areas where isocyanates are being used. Also, individuals who are heavy smokers, asthmatic or have pulmonary disease or pre-existing sensitivity to other chemicals should not be assigned as flat proofing processors.

Specific Reactions

When used in accordance with this booklet, the applicable MSDS and the Operator's Manuals, the Rely® System operates well below the exposure limits for TDI vapor concentrations. However, if operating guidelines are not followed and exposure exceeds the limits, the vapors of Component A can irritate the membranes of the nose, throat, lungs and eyes. Symptoms may include watery eyes, dryness of the throat, tightness of the chest (sometimes with breathing difficulty) and headaches. Symptoms may not occur until hours after exposure. **Individuals who exhibit these symptoms should leave the vicinity immediately and should be administered oxygen if they have breathing difficulty. A physician should be contacted immediately.** Symptoms generally subside after the person is removed from the area and long-term effects are unlikely.

Effects on the Eyes

The chemical components of the Rely® System are used under pressure and can be harmful to the eyes if safe operating procedures are not followed. If the eyes come into contact with Components A or B, irritation can occur. Isopropyl alcohol can cause irritation if splashed or sprayed into the eyes.

Protective eyewear such as safety goggles must be worn whenever Rely® System chemicals are handled. Only use OSHA and ANSI approved safety goggles. If chemicals are accidentally splashed or sprayed in the eye area, the eyes should be flushed with water for at least 15 minutes, and **a physician should be contacted immediately**. An eye wash station should be located in the processing area.

Effects on the Skin

Rely® Component A has a mild tanning action if it comes into contact with the skin. Occasionally, contact dermatitis can result as part of a specific skin allergy.

Rely® Component B can be irritating to the skin.

Isopropyl Alcohol may cause irritation if the skin contact is repeated or prolonged.

Skin contact with any of the above can and should be avoided by wearing butyl, nitrile or latex rubber gloves and other protective clothing. All three materials can be removed from the skin by washing the area thoroughly with soap and water.

Ingestion

DO NOT swallow any Rely® System chemicals. In addition, anyone working with chemicals of any kind should wash their hands thoroughly before eating, drinking or smoking. **If accidental ingestion occurs, call a physician immediately**. Refer to your MSDS for more specific information.

Storing and Handling Procedures

Personal Protective Equipment

Rely® System chemicals are safe when they are stored or transported in containers which have remained closed and intact. However, they can cause irritation if they come into contact with skin or eyes. Butyl, nitrile or latex rubber gloves and other protective clothing, such as smocks, aprons or Tyvek® coveralls, and safety goggles should be worn while changing chemical containers, cleaning or replacing parts of the dispensing system, processing tires or any other time that individuals are working with Rely® System chemicals.

Storage

Rely® System chemicals should be stored away from direct sunlight at temperatures between 65°F (18°C) and 100°F (38°C). If possible, containers of these chemicals should be stored indoors. If they must be stored outside, containers should be covered to prevent moisture from settling on the top. If water is allowed to get into a closed container of Rely® Component A, carbon dioxide gas will be generated and will build up pressure inside the container. If you suspect a container of Rely® Component A has become pressurized, the special handling procedures described in this booklet in the section titled "Drum Depressurization" under "Handling: Emergency Conditions" on page 11 must be followed.

In the unlikely event of a fire, advise the fire department where you regularly store drums or containers of Rely® System chemicals.

Handling: Normal Conditions

To facilitate proper performance, Rely® Components A and B should be used at room temperature (72°F/22°C). We advise you to let these chemicals rise to room temperature prior to use because Rely® Components A and B become more viscous if allowed to cool below 72°F/22°C. To bring Rely® Components A and B to the proper temperature of at least 72°F/22°C you should move the containers into the normal work area for several days. Never attempt to warm a container with hot water or direct heat of any kind. The chemical could become overheated and result in drum pressurization accompanied by the emission of irritating fumes. **If any container of Rely® System chemicals appears to be bulged or under pressure, emergency handling precautions should be followed**. See guidelines outlined under "Drum Depressurization" in the section titled "Handling: Emergency Conditions" on page 11.

Handling: Emergency Conditions

As mentioned earlier, all Rely® System chemicals are safe while being properly stored or transported in containers which have remained closed or intact. However, in the event of a fire, leak or spill, or container pressurization, special procedures should be followed. In case of emergency, contact:

CHEMTREC	**1-800-424-9300**
Carpenter Co.	**1-800-825-6836 or 1-866-290-7359**

Personal Protective Equipment: Spills or Leaks

During clean-up from a spill or leak, respiratory protection, butyl, nitrile, or latex rubber gloves, safety goggles, and other protective clothing should be worn.

If there is a leak or spill of Rely® Component A, self-contained breathing apparatus or supplied air respirators should be used. **However, cartridge-type respirators should not be used because the odor threshold is greater than the PEL; thus, chemical break-through of the cartridge may occur without being detected.** Wherever respirators are used, there must be a respirator program in place, which complies with the OSHA minimum requirements (29 CFR 1910.134).
If there is a large spill of Rely® Component B, or if it is spilled in a poorly ventilated area, respirators equipped for use with cartridges for removing organic vapors are appropriate. These respirators should only be used when an adequate supply of oxygen is present; otherwise, a self-contained breathing apparatus must be worn.

Leaking Containers

Any leaking container of Rely® Component A or B or isopropyl alcohol should be turned so that the leaking portion is uppermost and then covered to prevent water or dirt from getting into the drum. The material should be salvaged if possible.

Spills

As a precaution, it is a good idea to keep a quantity of deactivating solution and absorbent material on hand wherever you keep or store Rely® Component A. Deactivating solution is composed of 90% water, 8% concentrated ammonia and 2% liquid detergent.

Rely® Component A Spills

In the case of a Rely® Component A spill, the following procedures apply:

1. Cover with absorbent material such as sawdust, cat litter or vermiculite.
2. Pour deactivating solution over the spill and allow it to react for about 30 minutes.
3. Collect material in open top containers, move outdoors and pour more deactivating solution on top.
4. Allow the containers to remain uncovered for 24 to 48 hours to allow the carbon dioxide generated to escape. However, make sure they are protected against the elements (e.g., rain, snow).
5. Wash the spill area with deactivating solution.
6. After the absorbed material has become deactivated, it becomes a solid plastic material. Dispose of waste material in accordance with applicable regulations governing disposal of solid waste.
7. Some formulations of spilled Rely® Component A have been classified as hazardous wastes, and therefore must be disposed of in accordance with applicable hazardous waste regulations (see page 13). Spilled material should be absorbed in an absorbent material.

Rely® Component B Spills

In the case of a Rely® Component B spill, the following procedures apply:

1. Contain and cover the spill with absorbent material
2. Place the material in a container.
3. Dispose of waste material in accordance with applicable regulations governing disposal of solid waste.

Isopropyl Alcohol

In the case of an isopropyl alcohol spill, the following procedures apply:

1. Eliminate all ignition sources (flames, pilot lights, electrical sparks, etc.).
2. Contain and cover the spill with absorbent material.
3. Place the material in a container.
4. Dispose of waste material in accordance with applicable regulations governing disposal of solid waste.

Drum Depressurization

Any container of Rely® Component A or B which looks like it may be pressurized, misshapen or bulged, should be isolated immediately and depressurized. Safety goggles, butyl, nitrile, or latex rubber gloves, an organic vapor mask, coveralls, a rubber apron and rubber boots should be worn to protect against possible splatter or vapor contact.

With Rely® Component A, pressure may be relieved by carefully loosening the bung. Rely® Component B that appears to be pressurized should be moved to a

cool place. Open the container slowly to relieve the excess pressure or cool the containers to 80°F (27°C).

Fire

In the event of fire, evacuate the building immediately. Response team must wear full emergency equipment including self-contained breathing apparatus. Use dry chemical, carbon dioxide, foam or large amounts of water spray (do not use direct water stream) to control fire. Use water spray to cool exposed containers and reduce risk of rupture. If equipment is used to extinguish a fire, personnel must be trained in accordance with OSHA standards.

Rely® Component A and B

Rely® Components A and B have very high flashpoints, the temperature at which the vapors can be ignited if exposed to a flame. Containers that are located near the fire but are not actually on fire should be sprayed with water to minimize the risk of rupture. Good extinguishing agents include dry chemical powder, carbon dioxide, foam or water. Water should be used in large quantities, since the reaction between water and isocyanate can be vigorous.

Isopropyl Alcohol

Although isopropyl alcohol is available in non-pressurized 5 or 55 gallon cans, caution must be used in opening the containers in order to avoid producing sparks. It has a flashpoint of approximately 53°F (12°C).

Carbon dioxide or dry chemical powder should be used for small fires, while water spray should be used for large fires. Water spray (not directed streams) should be used to control fire.

Deactivation and Disposal

The following information and procedures apply only to 55 gallon drums. **These guidelines do not apply to bulk containers returned to the appropriate container recycling service.**

Empty Drums

Rely® Component A Drums

Residue from Rely® Component A Drums is an EPA hazardous waste, as it contains an RCRA listed material, toluene diisocyanate, waste code #U-223. Residual liquid drained from a Rely® Component A drum should not be added to the next container because the residue will produce crystals that can clog the pump resulting in poor fill quality.

To empty a drum, drain the drum to "drip dry" condition as described in the Rely® Component B drum section.

To dispose of a Rely® Component A drum, it must be triple-rinsed (see 40 CFR 261.7) and then may be sent to:

1. A drum reconditioner for reuse.
2. An approved landfill.
3. A scrap material dealer.

The residue and rinse material from the drum is considered a hazardous material and must be disposed of in accordance with applicable federal, state and local regulations.

Rely® Component B Drums

Empty Rely® Component B drums are not considered hazardous waste under current RCRA regulations. The Environmental Protection Agency (EPA) defines an empty drum as one from which all waste has been removed using practices commonly employed, e.g., pouring, pumping and aspirating. Rely® Component B drums should be "drip dried" so that they contain less than one inch of material or 3% capacity before being discarded or returned.

There are several ways to make sure a drum is drip dry. First, when the liquid level in the drum is near the bottom, you may tilt the container so the pump can draw up as much liquid as possible. Then the pump feed can be removed. The Rely® Component B drum can be turned upside down and the residual liquid collected and added to the next drum of Rely® Component B.

Empty Rely® Component B drums should never be reused unless first cleaned by a licensed reconditioner. If they are not being sent to a reconditioner, they should be punctured prior to disposal to prevent reuse.

In accordance with federal regulations, Rely® Component B drums should be handled in one of the following methods:

Method 1 – Empty Rely® Component B drums may be given to a licensed reconditioner.

Method 2 – Empty Rely® Component B drums may be disposed of in landfills after being punctured to prevent reuse. Some landfills may require that empty containers be crushed or cut in half to prevent large burying voids which may later cause the ground to settle.

Never use a torch on an empty Rely® System drum, even if it has been rinsed or treated. Like most materials, Rely® chemicals decompose at very high temperatures emitting fumes that can be irritating or toxic.

Isopropyl Alcohol Drums

Isopropyl alcohol used in cleaning and equipment flushing operations is considered a hazardous waste (see 40 CFR 261.21). It should be disposed of in accordance with applicable federal, state and local regulations.

Empty isopropyl alcohol drums should be drip dried, triple-rinsed with water (see 40 CFR 261.7) and disposed of in an approved landfill. Do not cut or weld any empty isopropyl drums since any residual vapors are extremely flammable and explosive.

Other Regulatory Information

Worker Right-To-Know

OSHA has issued a regulation known as the Hazard Communication Standard (29 CFR 1910.1200), more commonly referred to as the "Right-To-Know" standard. It was developed to protect employees working with hazardous chemicals in the workplace. Employees have a right to know the hazards associated with chemicals they work with and how to protect themselves against these hazards.

Carpenter Co. complies with this standard by providing MSDS' to our customers as well as by labeling our chemical containers. The MSDS' provide specific health and safety information regarding a particular chemical. The labels on the containers also contain important health and safety information. The MSDS' and labels, together with the information in this booklet and the Operator's Manuals, provide valuable information regarding the Rely® System and should be an integral part of your hazard communication training program.

Community Right–To–Know

The EPA has also enacted "Community Right-To-Know" regulations pursuant to the Superfund Amendment and Reauthorization Act (SARA), commonly know as SARA Title III or the "Emergency Planning and Community Right-To-Know Act of 1986 (EPCRA)". These regulations require companies that manufacture, store or use certain hazardous chemicals to comply with various reporting standards. Even though these regulations are federal, they require reporting to state and local agencies responsible for emergency planning.

The SARA regulations are divided into several sections which are used to support emergency planning efforts by state and local governments concerning chemical hazards within their community. Sections 311, 312, and 313 of the SARA regulations will have little impact on Rely® System customers unless large quantities of chemicals are stored or used at the facility. Each section under SARA has reporting requirements for listed chemicals if the specified inventory or usage amounts are exceeded.

SARA Section 311 and 312 regulations may apply to Rely® System customers who store more than 10,000 pounds of materials at **any one time** during the year.

Filing under Sections 311 and 312 is not required as long as the applicable limit is not exceeded. Customers should evaluate the quantity of Rely® System chemicals stored at their facilities to determine whether or not they are subject to the reporting requirements of Sections 311 and 312.

SARA Section 313 requires a report; known as Form R, to be submitted for any facility that employs ten or more full-time employees, is classified under designated SIC codes, and manufactures or processes more than 25,000 pounds of a listed chemical in a calendar year. The following chemicals, which are listed in the SARA 313 Toxic Chemical Listing, may be present in some Rely® System formulations:

- Toluene Diisocyanate, mixed isomers (CAS# 26471-62-5)
- m-Phenylenediamine (CAS# 108-45-2)

You should consult the applicable MSDS provided by Carpenter Co. to determine if the reporting requirements of SARA Section 311, 312 or 313 apply to your facility. Carpenter Co. recommends that these requirements be reviewed annually.