"Improvements in tank car and tank truck safety come from many sources: equipment manufacturers, the carriers, the federal government, the chemical industry and others."

incidents To minimize damage from incidents, they are improving use of CHEMTREC in highway emergencies.

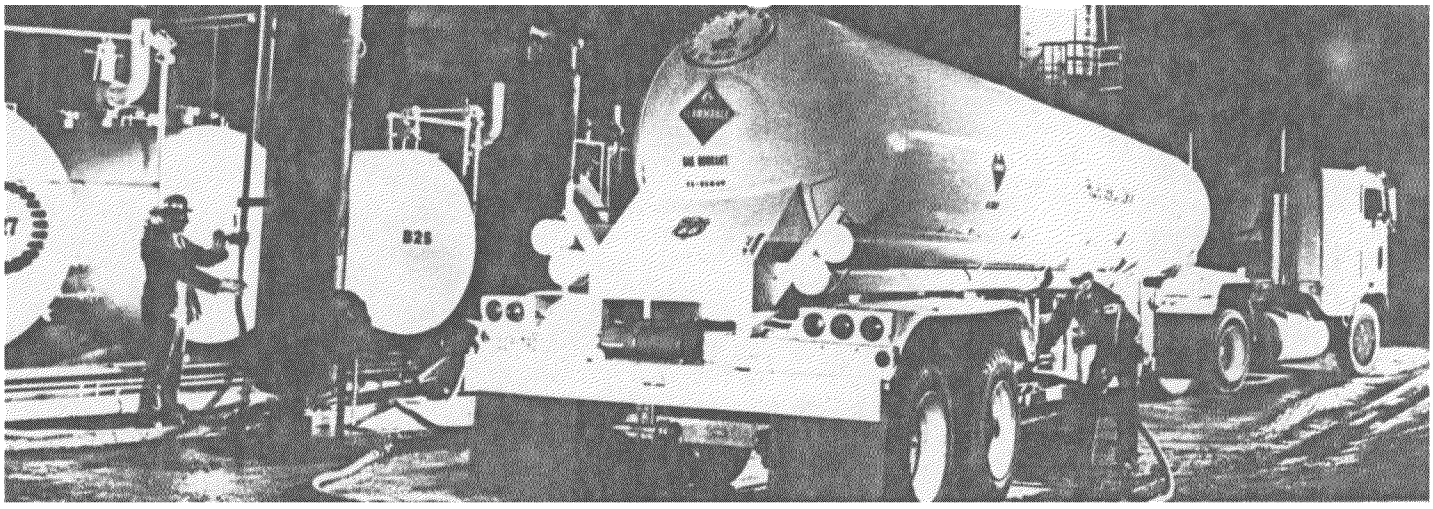
SAFETY FEATURES ARE SPREADING

Improvements in tank car and tank truck safety come from many sources' equipment manufacturers, the carriers, the federal government, the chemical industry and others Some of the more recent advances.

- Head shields are heavy steel plates mounted slightly ahead of the tank on cars carrying flammable compressed gases and anhydrous ammonia. By absorbing impact from other parts of other cars in a derailment, the head shields help reduce tank-head punctures.
- New coupling devices also reduce punctures. Conventional couplers, which link rail cars together, ride up and down freely In a derailment, they sometimes disengage and puncture adjacent cars The new "shelf" couplers have a heavy steel plate, or shelf, extending above and below the coupling device itself. This prevents disengagement and puncture.
- Insulation protects tank cars carrying pressurized, flammable gases from adjacent fires
- Heavy domes or railings reduce damage to loading valves if the tank car rolls over
- "Double web" cradles help hold the tank more securely on the car frame.

As in rail safety, design and engineering play important roles on the highway. Like many chemical rail cars, tank trucks must have strength, protective devices and suitable linings.

Chemical truck drivers don't just say "fill 'er up" when they haul potentially hazardous chemicals A safety checklist for loading and inspecting a tank truck may contain as many as 50 items



Here, too, people play an especially important role. The driver hauling 20 tons of a chemical down the highway faces the same safety problems everyone faces: slippery pavement, foolish or inattentive drivers in other vehicles—all the things that lead to accidents.

However, he has one responsibility other drivers don't have. He must protect all of us and the environment (and himself) from the consequences of spilled cargo. Obviously, the best way to do that is not to have an accident. Anything less than that, even an "incident," is a failure.

Federal regulations specify certain qualifications for drivers hauling materials in interstate commerce. Our companies frequently go beyond those requirements for their own drivers.

"Defensive driving" is the cornerstone of driver training, with frequent refresher courses and safety meetings to keep their abilities at a high level.

In addition to training their own drivers, many companies work with outside trucking firms, supplying training materials and even instructors for classes conducted on the proper handling of hazardous materials.

NEW APPROACHES COMING

What's on the horizon?

A variety of new safety devices are now under study, and we hope they will prove effective and see widespread use.

For example, there's a new kind of "center plate" made from an elastomeric plastic. The center plate is the point of contact between the body of the rail car and its wheel carrier. Putting the smooth plastic at this wear point should reduce friction and increase safety.

Also under test: a pressure relief valve for certain acid-carrying cars. This piece of equipment resets itself automatically after excess pressure is released. The device now in common use must be replaced manually after it ruptures, and may continue to vent material until it is replaced.

One idea being investigated is a new, stronger enclosure for the loading valves atop tank trucks. Also being explored are "locking chocks" which keep truck wheels from moving while the truck is being loaded or unloaded.

While chocks are regularly used during such operations, these can remain locked in place until the shipping supervisor satisfies himself that the load is properly secured. □

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Rubberlined chemical tanker, undergoing inspection at manufacturer's, is painted white to promote heat reflection and will soon be hauling corrosives.