

Work **Safe!** Bulletin

178
September 2001

FLAMMABLE LIQUID TRANSFER

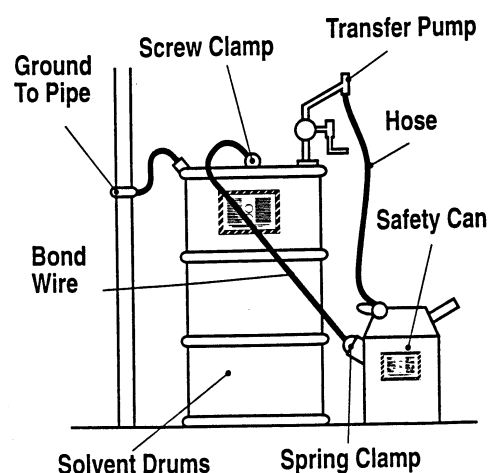
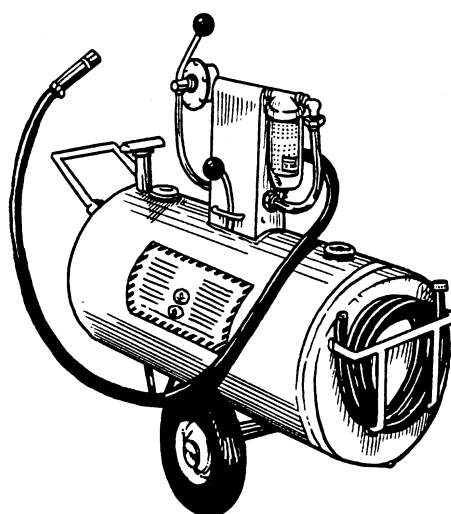
Workers are regularly exposed to the risk of injury when working with or in proximity to gasoline, or other types of flammable liquids. Several fires are reported yearly resulting in serious injury and property damage. Primarily affected are the automotive, truck, and recreational vehicle industries, such as service centres, autobody repair shops, dismantlers, and recyclers.

GASOLINE is a common and highly flammable liquid that can be ignited under almost all ambient temperature conditions. The chemical and physical properties are highly variable depending on the specific product, and the flash point may range from approximately -22 to -43 deg. C.

Workers are sometimes required to siphon or drain and refill vehicles with fuel. Transfer of these fuels requires an approved system, including approved safety equipment.

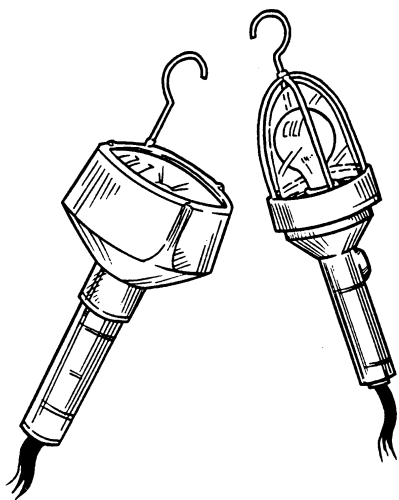
Several factors must be considered when transferring flammable liquids. Static electricity may be generated when two dissimilar materials pass closely by each other, including flowing liquids and gases, as in the case of transferring flammable liquids. Accumulated static electricity may discharge, producing an electric arc, and provide an ignition source.

Safety equipment such as portable fuel transfer tanks are designed to transfer flammable liquids from vehicle and equipment tanks into a self contained approved storage tank by means of a pump. They reduce the amount of vapour and splashing or spilling of fuel and have provisions for proper bonding and grounding to eliminate accumulations of static electricity.



These units have various capacities and also eliminate the use of open unapproved containers. Only equipment tested and approved by recognized agencies such as Underwriters Laboratories Inc. (UL), Factory Mutual Engineering Corporation (FM) and National Fire Protection Association (NFPA) shall be used to transfer N.F.P.A. Class 1 flammable liquids to or from vehicle or equipment tanks inside buildings.

Work activities also often require the use of Portable lights or Trouble lights. Bulb surface temperatures may approach 500 deg. F. (260 C.) and may provide an ignition source when these lights are positioned near a fuel source where splashing or explosive atmospheres occur. It is also possible that any of the trouble light components, connections, switches, etc. may result in electrical arcs and provide a potential ignition source.



Portable lighting as depicted are designed to eliminate ignition sources in the presence of flammable liquids or explosive atmospheres. Only lights tested and approved by recognized agencies such as UL, FM, NFPA, and Canadian Standards Association (CSA), shall be used with Class 1 Flammable liquids.

In accordance with the Workplace Safety and Health Act W 210, employers or contractors must ensure policies and safe work procedures are developed and implemented to prevent the ignition of flammable liquids, or explosive atmospheres that exist or are likely to exist at the worksite. These include provision of fire extinguishing equipment, proper installation of electrical or fuel fired equipment, storage of flammables, spill control, no smoking policy, and welding procedures. All safety equipment must be used and maintained according to manufacturers' specifications.

Auto and Truck manufacturer specifications and procedures must also be followed for the safe removal of fuel systems, including fuel pump, sending unit, fuel lines and tanks. Refer to the manufacturers manual.

Manitoba Fire Code Regulations - Part 4 - Flammable and Combustible Materials identifies the requirements for the storage, handling, use and processing of flammable liquids and combustible liquids in buildings, structures and open areas. Sections 4.1.5.3. Ignition Sources, 4.1.8.2. Control of Static Electric Charge, 4.1.8.4. Fuel Tanks of Vehicles, identifies the control of the specific hazards noted.

Contact the agencies listed below for assistance in complying with the Manitoba Fire Code:

City of Winnipeg Fire Department,
5th Floor, Public Safety Building,
151 Princess Street, Wpg. Man.
(204) 986-6358

Outside the city of Winnipeg, contact:
Manitoba Department of Labour,
Office of the Fire Commissioner,
501-401 York Ave. Wpg. Manitoba,
(204) 945-3322
or the local authority having jurisdiction
in your area.

Other fire hazard related Work Safe bulletins include:

- #107 FIRE HAZARD - METHYL HYDRATE
- #112 NEVER USE GASOLINE OR FLAMMABLE SOLVENTS AS A CLEANING AGENT
- #117 FIRE AND EXPLOSION HAZARDS WHEN SERVICING FUEL TANKS
- #127 THE CLEANING OR SAFEGUARDING OF SMALL TANKS AND CONTAINERS
- #158 SPRAY COATING