

# DANGER HOT ASPHALT

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Many of us who have worked around asphalt for years don't often think of the common safety practices which have kept us healthy for so long. We may consider these practices to be common sense, and not worth discussion. We may consider the hazards of working with asphalt to be obvious. Even though these hazards might seem obvious, we hear all too often about accidents in which workers are injured because they did something which was obviously wrong.

It is everyone's responsibility to provide a safe work place. Owners, equipment operators, laborers, and suppliers all play an important role in assuring the safety of our workers. We would like to remind you of some of the safety practices that need to be followed when storing, handling, heating, and spraying liquid asphalt products.

First, it must be recognized that all asphalt products, when heated enough, are flammable. That means that if you heat any asphalt hot enough, whether it is a cut back, an asphalt cement, or an emulsion, hazardous vapors will be produced. When these vapors are mixed in proper proportion with oxygen in the air, and come in contact with a source of ignition, a flash fire can occur. The flash may be quite violent, and if enough vapors are present a raging fire may develop. These types of fire can and have burned people very badly, and have killed some.

Many of the asphalt products we use every day are used at temperatures above their flash points. The flash point is the product temperature where a source of ignition will cause the vapors produced to catch on fire. RC and MC cut back asphalts are commonly used at temperatures above their flash points, where flammable vapors are produced. The

flash points of asphalt cements may be above the temperatures at which they are used, but they are not far away. You may be using an asphalt cement (AC) at a temperature which is only 20 to 25°F below its flash point. If that AC is overheated in a small area, flammable vapors may be produced. If the water is boiled off of a bit of emulsion, the remains may be asphalt cement or there may be solvents in the asphalt which can produce flammable vapors. In either case the remains are dangerous if overheated. You may overheat a small amount of emulsion, boil off the water, overheat the remaining asphalt, and be producing flammable vapors without even realizing it. If the vapors mix with oxygen and reach a source of ignition, a fire will develop.

The flammable nature of asphalt vapors, and the quick, violent fires which can develop lead us to recommend the following safety precautions.



**When heating asphalt in a transport tank, distributor,**

**or tack truck, position the tank broadside to the wind!**

**Never heat in a confined area like a garage or shed!**

If any flammable vapors are present, the vapors must escape from the tank through the vent pipe. Typically the vent pipe exits at the bottom of the asphalt tank. Positioning the tank broadside to the wind will allow the wind to disperse the vapors

safely away from the burners and other sources of ignition on the truck. If the tank is parked facing into the wind or with its back to the wind, the wind may carry vapors to the burners at the rear, or to other sources of combustion near the engine. If you heat the asphalt tank in a confined area flammable vapors can collect in combustible concentrations.



**Always be sure that the heating flues are covered by at least six inches of asphalt before lighting the burners!**

If the heating flues are not sufficiently covered, the asphalt near the flues will be overheated. Flammable vapors will be produced. ACs will be heated above their flash points. Emulsions will be broken and heated above the flash point of their base asphalt. The flue pipe may be heated hot enough to provide a source of ignition. When this happens, an explosion can occur, which may rupture the tank or blow the man hole cover off.

Before lighting the burners it is very important to be sure that the flues are covered over their entire length. Many asphalt tanks are built with a slope or pitch for better drainage. If the tank is parked on a grade, one end or one side of the tank may be higher than the other. You must be sure that the highest point on the flue is covered according to the equipment manufacturer's recommendation. Never, under any circumstances light the burn-

ers without the flues covered to the depth recommended! If the tank is partially loaded you may need to add more asphalt before heating.

**Never spray asphalt while the burners are running!**

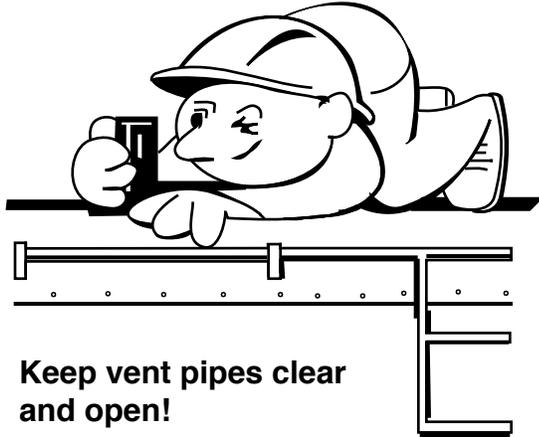
If you spray asphalt with the burners running, you may uncover the flue causing a fire inside the tank. Running the burners while spraying will provide a source of ignition for vapors produced while spraying, causing a fire outside the tank. Be sure the burners are completely out before spraying. LPG burners will support a flame for several minutes after the valves are shut off.



**Keep all sources of ignition away from manholes and tank vents!**

When you open the manhole flammable vapors may escape. There may be flammable vapors in the tank which are too concentrated to burn. When you open the manhole fresh air or oxygen is introduced. The cigarette in your hand becomes a source of ignition and you may be additional fuel. Flammable vapors are intended to escape out of the tank vent. Keep hand torches, cigarettes, engine exhaust, and other sources of ignition away from these vapors.

**! IMPORTANT !**



Keeping the vent pipe clear and open will allow the vapors to escape and will keep them from building pressure inside the tank.

**Do not operate or weld on a tank which is leaking!**

A leaking tank must be repaired before continuing use. The repair should be performed by an experienced tank repair shop. An “empty” tank may contain flammable vapors or residual asphalt. You would never consider welding on a gasoline tank. You should never consider welding an asphalt tank either. A tank repair shop will have sensors which can determine if there are flammable vapors present and if the tank is safe to weld.

Of course this is just a short list of the many safety practices you need to follow every day. For more information we recommend you read the operations, safety, and maintenance manuals supplied with your equipment. We also recommend you read the Asphalt Institute’s booklet titled, Safe Storage and Handling of Hot Asphalt. This booklet is identified as IS-180 by the Asphalt Institute. Their phone number is 606-288-4690. You can get a free copy from E.D. Etnyre & Co. by calling 800-995-2116 and asking for part number 6001085.

The illustrations shown here are intended to catch your attention. The hazards identified however, are very real and very dangerous. We do not take these hazards lightly. We hope that you won’t either