Liquid Asphalt Burn Safety Talk



WHAT'S AT STAKE?

Asphalt is widely recognized as one of the most recyclable construction materials in use on the planet today. Lafarge North America typically incorporates up to 30 percent of reclaimed asphalt pavement (RAP) back into new asphalt production, reducing total life-cycle greenhouse gases by 10 percent. Hot Mix Asphalt (HMA) pavement is the most recycled material in the United States; each year more than 100 million tonnes of asphalt pavement is reused or recycled into new pavements.

Sustainable construction is a growing concern for all stakeholders, from state governments with major highway projects to parking lots for grocery chains that also want to demonstrate a commitment to the green agenda.

WHAT'S THE DANGER?

HARMFUL EFFECTS

Over a half-million workers are exposed to fumes from asphalt, a petroleum product used extensively in road paving, roofing, siding, and concrete work. Health effects from exposure to asphalt fumes include headache, skin rash, sensitization, fatigue, reduced appetite, throat and eye irritation, cough, and skin cancer.

STORING, HANDLING, HEATING / SPRAYING

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.

What Happens?

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.

FLASH POINTS

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.

ASPHALT POISONING

Workers can and do suffer from asphalt poisoning to different parts of the body.

Symptoms

- Loss of vision
- Severe pain in the throat
- Severe pain or burning in the nose, eyes, ears, lips, or tongue
- Collapse
- Low blood pressure that develops rapidly (shock)
- Breathing difficulty (from breathing in asphalt)
- Throat swelling (which may also cause breathing difficulty)
- Burns
- Holes (ulcers) in the skin or tissues under the skin
- Blockage in the intestines
- Blood in the stool
- Burns of the food pipe (esophagus)
- Severe abdominal pain
- Vomiting (may contain blood)

Home Care

Seek medical help right away. DO NOT make the person throw up unless poison control or a health care provider tells you to.

If the person swallowed asphalt, give them water or milk right away, unless a provider tells you not to. DO NOT give anything to drink if the person has symptoms that make it hard to swallow. These include vomiting, convulsions, or a decreased level of alertness.

Before Calling Emergency

Have this information ready:

- Person’s age, weight, and condition
- Name of the product (ingredients, if known)

- Time it was swallowed
- Amount swallowed

PROGNOSIS

How well someone does depends on how much asphalt they swallowed and how quickly they receive treatment. The faster medical help is given, the better the chance for recovery. Hot asphalt cools very quickly and is difficult to get off the skin. Serious burns can easily occur from the extreme heat. Construction workers who work with asphalt should wear protective clothing.

ASPHALT TAKEAWAY

Poisonous Ingredient

The substances in asphalt that can be harmful are:

- Hydrocarbons
- Industrial glues
- Industrial solvents
- Tar

Where Found

Asphalt is found in:

- Road paving materials
- Roofing materials
- Tile cements

HOW TO PROTECT YOURSELF

The flammable nature of asphalt vapors, and the quick, violent fires which develop lead to the following safety precautions:

- When heating asphalt in a transport tank, distributor, or tack truck, position the tank broadside to the wind.
- Always be sure that the heating flues are covered by at least six inches of asphalt before lighting the burners
- Never spray asphalt while the burners are running
- Keep all sources of ignition away from manholes and tank vents
- Keep vent pipes clear and open
- Do not operate or weld on a tank which is leaking

CONTACT/HOT LIQUID ASPHALT

Personal Protective Equipment Must Be Worn At All Times

On those occasions when contact with hot liquid asphalt does occur, be prepared. The asphalt Institute has done studies and has prepared a video, posters and wallet cards to train and inform personnel on what to do when someone is burned by hot liquid asphalt. Initially, remain calm, do not panic and do not delay treatment. Treatment steps are as follows:

1. Make certain the victim can breathe, check their airways and make certain

blood circulation has not been disrupted.
2. Start cooling the asphalt immediately with cool water; hot asphalt will continue to burn if not cooled as soon as possible.
3. Do NOT remove the asphalt from the skin, it could also remove the skin causing a greater problem later.
4. Place affected areas under running water, ice or cold packs to cool the asphalt. Running/flowing water should last a minimum of 20 minutes and longer if necessary to get the asphalt to room temperature.
5. Do Not cover the burned area.
6. Notify others in the area.
7. Call for Help! It is urgent get emergency medical attention to properly address the burned areas.

FINAL WORD

Friend or FOE? Asphalt can be both at the same time. The better read is to place workers and industry in the friend category. Asphalt used properly and constructively far outweighs the deleterious effects of asphalt properties. Example: 100% of the asphalt supplied can be recycled.