


Onsite Asphalt Safety Training Guide

Before you begin the meeting...

- *Does this topic relate to the work the crew is doing? If not, choose another topic.*
- *Has the crew completed basic Hazard Communication training? It will help them understand this topic.*

- *Did you read this Training Guide and fill in the blanks where the  appears?*
- *Did you bring labeled containers and Material Safety Data Sheets (MSDSs) for a few of the adhesive and resin products used on the site?*

Begin: Common sense tells you that work with hot asphalt can cause burns. Molten paving asphalt is usually between 250° and 325° F. Roofing asphalt may be hotter than 450°.

Burns aren't the only hazard. When asphalt is heated, it may produce dangerous gases, vapors, and fumes. One example is hydrogen sulfide gas, which may build up when hot asphalt is stored in unventilated containers. Too much hydrogen sulfide gas can knock you out or kill you. The solvents, binders, and other chemicals used in asphalt can also be very hazardous. Some give off toxic vapors; some can catch fire or explode.

You or a crew member may want to add a personal story about asphalt.



Next, discuss with the crew where asphalt is used at this particular job site:

ASK THE CREW THESE QUESTIONS:

After each question, give the crew time to suggest possible answers. Use the information following each question to add points that no one mentions.

1. What is asphalt? Is it the same as coal tar?

- Asphalt is a black, sticky material that comes from crude oil. It's used in paving, roofing, waterproofing, and some glues.
- People often confuse asphalt with “coal tar” or “pitch.” But since tar and pitch come from coal, not oil, they are different materials and have different hazards.

2. What are some ways that asphalt can harm you?

- **Fire and explosion:** Some asphalt products are **highly flammable**.
- **Skin and eye contact:** Hot asphalt can cause **burns**. Some people also get allergic skin reactions and **rashes** from contact with asphalt. You may get a condition similar to acne, or you may get skin spots. These can get worse if you work in bright sunlight or ultraviolet light (for example, when welding). Also, your eyes can get irritated from asphalt fumes, or if you touch your eyes with asphalt on your hands.
- **Breathing:** When asphalt products are heated, their **fumes** can irritate your nose, throat, or lungs. You may first notice a cough, scratchy throat, or mucus. You can get bronchitis or emphysema if you inhale asphalt fumes repeatedly.

Mixed with the asphalt fumes may be **hydrogen sulfide**, a very toxic gas. Breathing too much can cause dizziness, convulsions, coma, or death. Chemicals in asphalt products also produce **vapors** which you may inhale. The effects depend on the particular chemical. Some of these chemicals can damage the liver, kidneys, and nervous system (including the brain).

3. What ingredients in asphalt can cause these problems?

- Asphalt is originally solid or semisolid. It is blended or “cut” with a **solvent** to make it more liquid. Hazardous solvents may be used, like naphtha, toluene, and xylene.
- Many other chemicals are used in asphalt products—binders, hardening agents, bonding agents, crushed rock, and sand. For example, a product might contain:
 - **styrene**, a toxic chemical that causes nervous system damage.
 - **asbestos** and **silica** in the rock and sand. Their dusts can cause lung disease.

- The composition of asphalt products is changing. Today, some paving asphalt is mixed with materials like resins and recycled rubber, which may add new hazards.

4. How can you find out what chemicals are in a particular asphalt product, and what their hazards might be?

- Check the **label** (if available). Look for a list of ingredients or a safety warning.
- Read the **Material Safety Data Sheet (MSDS)** for the product. MSDSs are required by law. They'll tell you the ingredients and possible health and safety hazards. Everyone working on the site has a right to see MSDSs.

Let's look at some MSDSs for asphalt products we use on this job.



Show the crew the sample MSDSs you brought to the meeting. Explain them briefly.

(MSDSs are covered in more detail during basic Hazard Communication training, which everyone on the crew should already have completed.)

5. What are some ways to work safely with asphalt?

- Use a **safer asphalt mix** if possible. “Rapid cure” asphalt products evaporate easier, so they're more dangerous— there are more toxic vapors and more danger of fire.
- **Avoid breathing** hazardous substances. Never stick your head in an asphalt tank or mixing container. Never lean over a kettle. Stay upwind from asphalt if possible.
- **Enclose** mixing and stirring operations. Stirring asphalt in an open kettle exposes you to fumes, solvent vapors, and possible burns. Cover the kettle if you can.
- **Stop** what you're doing if you notice symptoms. Ask your foreman for advice.
- Keep asphalt off your **skin** and out of your **eyes**. If you do get asphalt in your eyes, flush with water for 15 minutes.
- **Don't eat, drink, or smoke** on the job. Anything you put in your mouth could have been contaminated by asphalt. Wash up first.

6. What personal protective equipment might you need if you work with asphalt?

Tailgate Meetings That Work : Collection

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