Why does coal tar burn, is it safe to use, and what steps can I take to prevent burning?

First of all, like many other chemicals, Coal tar emulsions are safe to use if they are used properly in conjunction with good hygiene care.

There are no restrictions on Refined Coal Tar emulsions based on extensive TCLP and refined coal tar emulsions are not classified as hazardous materials. "Air monitoring studies have concluded that that during spray or squeegee application emissions are negligible and well below OSHA exposure Limits" (Koppers 1991).

Contractors must be responsible in the application of any coating.
Coal tar emulsions contain compounds with acidic character that are also light sensitive. These chemicals, when mixed with the moisture on skin can cause a chemical burn. This burning is treated just as a sunburn. The burning is an unpleasant side effect for the exposed contractor. The contractor must protect his (her skin) by creams (spf 15 or higher) or preferably cover up the legs and arms with protective clothing. Coveralls or uniforms keep the contractor protected and looking clean. Finally, when the day is done, take the long deserved cold shower to wash away any residual overspray. It should be noted that the characteristics of these compounds in the coal tar are what give the coating its water resistance, oil resistance, and other chemical resistance.

Asphalt emulsions do not burn but can also have carcinogenic compounds and can lead to other skin disorders. Asphalt emulsions do not match the water resistance and oil resistance of coal tar emulsions.

Asphalt vs Coal Tar? Under what conditions would an asphalt emulsion sealcoat be preferable to a coal tar emulsion sealcoat?

We manufacture both but in fairness, the coal tar is our main product so far. I have both intellectual and financial reasons to favor coal tar. With that in mind, there are three occasions where I think asphalt emulsions are superior.

1. The burning issue with the crews is a relevant issue. I would use asphalt if I my crews were not able to be cautious in the handle and care of coal tar emulsions. Wearing protective clothing like long pants, gloves, and some skin cream if light skin color is all that is necessary for protection.
2. I believe asphalt emulsions are more flexible and will cover, repair hairline cracks in driveways and parking lots better than coal tar emulsions.
3. Older rougher pavements can be surfaced better I think if a an asphalt emulsion with a 4 lb sand load and a viscosity enhancer like Macro-flex. We have rejuvenated old airport runways this way with great results. I do not think that the coal tar emulsion has the body for this type of an application. See More Information...

How many coats of sealer should I apply?

Most everyone has painted walls and realizes that one coat does not fully cover the walls. Hence, two coats are needed. Two coats are what I will always recommend anytime except in the low traffic areas such as residential driveways. Two coats cover better and the job will last a reasonable amount of time before wearing is observed. The second coat may only cost 25% of the whole job since the cleaning and trimming are done. It is a good way to squeeze more profit from a job.

Do additives work and how much should I use?

Additives are good tools used to modify the sealer for specialized applications. They can build viscosity of the coating in order to hold higher sand loads, they can quicken the drying times of the coating and they can lengthen the life of the coating by improving the tensile strength and the flexibility of the coating. However, many of the good qualities of the additive are offset if a contractor adds more water than recommended. The strength of the coating will always come from the coal tar or asphalt. Adding more water than recommended results in a thinner coating and less coal tar on the asphalt. I recommend 1-4% additives depending on the application. Also, testing has repeatedly shown that post adding latex is not as advantageous as the manufactured sealer that incorporates the latex additive in the manufacturing process. You may consider buying a premium grade sealer like STAR-SEAL SUPREME that takes full advantage of these additives.

How do I prevent excess marking?

Marking is and will always be a factor in the pavement coatings industry. The contractor applies a fresh coating and 24 hours (or before) a 4,000 LBS vehicle is turning, thereby causing pavement marking. Any marking will go away after 2-3 weeks when all the moisture escapes leaving a fully cured coating. The marking is heightened in high humidity (75% and above) since the diffusion of moisture to the surface and subsequent evaporation is slowed by an environment already full of moisture. The contractor can reduce the marking by allowing the first coat more time to dry. We advocate the second coat the second day when temperatures exceed 90° F and humidity above 75%. The contractor can also add 5% more water to make a thinner coating allowing the water to escape more easily. Finally, a little more sand can also help because the car tires ride on top of the sand.

Why do asphalt sealers develop cracks and what steps can I take to prevent cracks?

1. In my experience sealer cracking can be explained by three main reasons.

1. First, if newly laid asphalt is not allowed to fully cure and a sealcoating or barrier coating is placed on the asphalt, the coating and subsequently the asphalt will prematurely age, shrink, and cause this cracking.
2. The second reason is when multiple layers of sealer are installed on a driveway for instance over a period of years. The first layer (s) is never worn away since little traffic exists. The bottom layer ages and shrinks. Cracks develop and water seeps in to cracks submitting the coating to the freeze thaw cycles. Eventually the coating loses adhesion and begins "popping" off.
3. The third reason is improper compaction by the paving contractor. If the asphalt is not fully compacted it remains too flexible. The movement caused as vehicles travel across the pavement leads to cracking of the coating as the coating cannot flex. Other reasons may exist but these are the most prevalent.

2. How do you prevent sealer cracking?

1. Wait until the asphalt has fully cured which can be 30 days to a year. In order to be safe I recommend waiting a year.
2. Secondly, in areas where no little or no traffic exists apply only one spray coat in these areas while applying two in trafficked areas. Most driveways after a two coat initial application, I apply only one coat.
3. Also, if the driveway does need sealcoating you must be willing to tell the homeowner to wait a few years.