

Trends in Creosote Supply and Quality

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Introduction

This paper examines the ten-year outlook for wood-preserving creosotes in North America. The major factors determining creosote availability and quality in the future will be the quantity of coal tar produced in the United States, and the economics of the competing uses for coal tar distillates.

Major Uses of Coal Tar Distillates

Though no two tar plants are exactly alike, in general we may say that two distillate streams are initially generated during the production of coal tar pitch (see chart). The first distillate off, representing 20 percent of the tar, is generally known as chemical oil. It is the lighter fraction, containing from 40 to 55 percent naphthalene. The second, heavier distillate is the creosote fraction used to make wood preservative and carbon black. It accounts for 30 percent of the crude tar.

The remainder, about half of the tar is carbon pitch for the aluminum and graphite industries. This is the product which drives the domestic tar distillation business.

Each distillate may then be processed to create value-added products. Solvent from which resins are made, naphthalene for plastics and pesticides, and "correction oil" for use in wood-preserving creosote are all derived from the chemical oil.

In North America, most of the creosote fraction produced is combined with correction oil, or in some instances unprocessed chemical oil, to make AWWPA-specification creosotes. The heavy distillate left over after wood preserving needs are met is sold as carbon black feedstock. In the rest of the world, this fraction is mostly used for the production of carbon black and anthracene oil.

Today, market prices for refined solvent and naphthalene exceed the price of creosote wood preservative, which in turn has a greater value than carbon black feedstock.

Coal Tar Production

The total world supply of coal tar, a product of the coking of bituminous coal, should remain relatively constant at about 12 million metric tons per year over the next decade. Even the worst case projection shows only a one percent decline in world tar production by 2006. North America, though, will suffer a large decrease in its coal tar supply.

Tar production in the United States will plummet as environmental restrictions imposed under the Clean Air Act Amendments of 1990 lead to the permanent closure of older coke batteries. The scant few batteries being built to replace some of this lost metallurgical coke capacity have non-recovery

ovens, which do not produce coal tar. Therefore, a twenty percent drop in domestic tar production is expected over the next decade.

It is not likely this reduction in domestic tar availability will be offset by importing coal tar, since it is much more economical to import only our prime product, carbon pitch.

What does this mean for the U.S.? Our wood treating industry uses 72 million gallons of creosote preservatives annually. This consumes three-fourths of the creosote fraction produced today in North America. Most of the remainder, on the order of 18 million gallons per year, is sold as carbon black feedstock.

As long as higher wood-preservative prices continue to justify the additional costs of processing and regulatory compliance unique to pesticides, tar distillers will likely react to the decline in distillate by reducing the amount of creosote fraction available to the carbon black industry. This should provide sufficient creosote volume to meet the needs of treaters for the future.

Correction oil volume, however, will be limited. Koppers has, and will have for the foreseeable future, a surplus of correction oil. Today, we add more to the blend than necessary to meet AWPA specifications. This enables us to lower naphthalene levels, while still maintaining the clean-treating, easy-handling characteristics desired by wood treaters.

But, as the distillate pool shrinks, the supply of correction oil will decrease, too. The preservative supply can be stretched and still meet minimum AWPA requirements by using less correction oil, or by adding unprocessed chemical oil to the blend. We are already seeing both in today's tightening market.

So far, the impact on quality has been negligible. Over time, however, lower naphthalene and less correction oil in the creosote may cause higher concentrations of phenanthrene, anthracene and carbazole (PAC), and decreasing liquidity in the preservative. Unless tar distillers can provide an economical means of offsetting these trends, a decline in both the handling characteristics of the creosote preservatives available and the surface cleanliness of the treated wood may result.

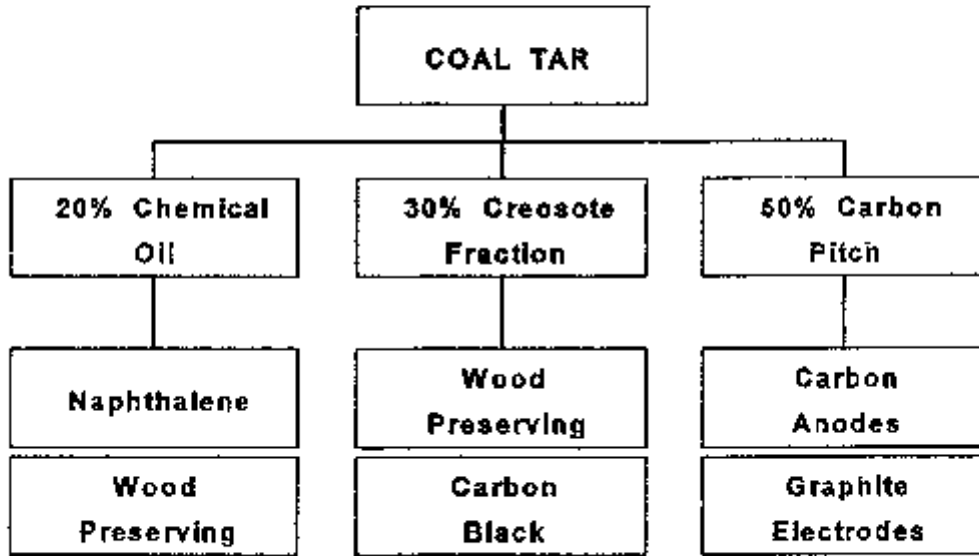
In any event, the efficacy, or quality of the product as a pesticide, will remain unaffected.

Conclusion

In summary, the anticipated decrease of coal tar distillate available in North America should not create a shortage of creosote preservative, but may lead to a decline in certain quality characteristics of the product available.

These changes are already providing challenges to the wood treater, challenges Koppers Industries and our partners are well-equipped to handle now and into the future.

COAL TAR MAJOR USES



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