

Colombes, August 18<sup>th</sup> 2008

## **Two new gas-adsorbing additives for power transformer oils help optimize transformer reliability and efficiency**

**Arkema is taking part in the next CIGRE (Comité International des Grands Réseaux Electriques) event in Paris from August 24 to 29, and for the first time will present Jarylec<sup>®</sup> GA and Jarylec<sup>®</sup> GT, two new additives which optimize the performance of mineral oils contained in power transformers. By adsorbing the gases released by these oils and improving their oxidation resistance and breakdown strength, these additives can help extend the lifetime of the transformers and minimize the risks associated with the formation of these gases.**

Transformer oils are of mineral origin and contain naphthenic carbons, paraffinic carbons and aromatic carbons. To reduce these polyaromatic carbons as much as possible and so avoid the carcinogenic labeling of mineral oils, the process consists in hydrogenating the mineral oils to lower their polyaromatic carbon content to below 3%. However, the properties of the oils derived from good aromatic compounds are adversely affected: hydrotreated oils release a gas which leads to partial discharges, particularly harmful in the breakdown of the dielectric fluid.

Arkema's solution is to add a stable and non-carcinogenic aromatic compound to restore the good performances of the mineral oil: Jarylec<sup>®</sup> GA (or Jarylec<sup>®</sup> T, a dielectric additive recommended for transformers already filled and in service). Most of the physical properties of Jarylec<sup>®</sup> GA and Jarylec<sup>®</sup> GT (viscosity, vapor pressure, flash point, etc.) are close to those of mineral oil. With their high aromaticity, they feature excellent breakdown strength and are also powerful gas-adsorbants.

Jarylec<sup>®</sup> GA and Jarylec<sup>®</sup> T considerably reduce partial discharges, and hence the formation of gas from the breakdown of the mineral oil. These additives help reduce the risk of explosion and fire and therefore optimize safe working conditions. Preventing the formation of gases also means reducing maintenance costs related to the monitoring of these gases.

Additionally, Jarylec<sup>®</sup> GA and Jarylec<sup>®</sup> T are both a blend of benzyltoluene isomers, a non-classified synthetic oil presenting no hazard to health or the environment, and which by its chemical nature is fully compatible with the mineral oils used in transformers.

## Highly convincing tests

An IEC (International Electrotechnical Commission) test using hydrogen has shown that Jarylec<sup>®</sup> GA could adsorb –170 µl/min of gas. Tests conducted with a variety of mineral oil blends have shown that a gas-releasing mineral oil could be processed into a gas-adsorbing oil by adding 3-5 % of Jarylec<sup>®</sup> GA. For transformers already in service and whose oil presents gassing problems, adding 8-10% of Jarylec<sup>®</sup> T helps significantly improve the gassing tendency.

## Jarylec<sup>®</sup> GA and T: unquestionable benefits for manufacturers and users of transformers

- **Greater safety resulting from the adsorption of gas:** the formation of gas results from partial discharges which cause the electro-chemical breakdown of the mineral oil into smaller molecules such as hydrogen. Any build-up of gas promotes persistent partial discharges. The build-up of gas increases the risk of the transformer blowing up and a risk of fire. Thanks to Jarylec<sup>®</sup> T and Jarylec<sup>®</sup> GA gas adsorbants, partial discharges are considerably reduced.
- **Superior resistance to oxidation and decomposition:** when aromatic compounds are added to the mineral oil, resistance to oxidation and decomposition of the oil is improved: less sludge and less acidity are formed, as aromatic hydrocarbons are more stable.
- **Lower maintenance costs:** adding Jarylec<sup>®</sup> GA or Jarylec<sup>®</sup> T to the transformer oil minimizes the ageing of the oil, and degassing is no longer necessary. The transformer's maintenance costs are therefore also reduced.

**Arkema is exhibiting at CIGRE 2008  
Come and meet Jarylec<sup>®</sup> experts in booth n°92**

[www.jarylec.com](http://www.jarylec.com)

*A global chemical company and France's leading chemicals producer, Arkema consists of three strategically related businesses: Vinyl Products, Industrial Chemicals, and Performance Products. Arkema reported sales of 5.7 billion euros. Arkema has 15,200 employees in over 40 countries and six research centers located in France, the United States and Japan. With internationally recognized brands, Arkema holds leadership positions in its principal markets.*

### CONTACTS:

Product:	Olivier Dalle	Tel. : +33 1 49 00 78 01	E-mail : olivier.dalle@arkema.com
Press:	Jacques Badaroux	Tel. : +33 1 49 00 71 34	E-mail : jacques.badaroux@arkema.com