

In more than fifty years of use, there has never been any evidence that the responsible manufacture or normal use of the alkylphenol-based products, including nonylphenol and its ethoxylates, affects the health of workers or the public, or that their disposal in modern waste treatment systems causes any harm to wildlife or the environment.



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A photograph of a seagull in flight against a sunset sky. The sun is a bright yellow circle on the horizon, and the sky transitions from orange to blue. The water below is dark blue with whitecaps.

Great Paper  
Products  
Through  
Great Chemistry

## PROVEN

Chemicals have been part of papermaking for more than a century. For the past fifty years, a remarkable family of surfactants known as alkylphenol ethoxylates (APEs) have been an integral part of manufacturing top quality paper products for every important purpose—from the toughest industrial packaging to the finest consumer bond.

Throughout the world, wherever pulp and paper are made, APEs have proven their effectiveness as, by far, the best chemistry for speeding the separation of cellulose fibers from wood during the pulping process, for removing lignin and other contaminants, for enhancing the bleaching process and for making it possible to manufacture top quality paper more efficiently. This is because of the outstanding performance of APEs as wetting agents, dispersants and emulsifiers.

## RELIABLE

One of the most valuable qualities of APEs is their reliability and chemical stability. They do not break down or lose their effectiveness under extremes of heat or the most severe buffeting of the manufacturing process. This is another reason why they are the preferred surfactants in papermaking.

## COST-EFFECTIVE

Still another reason for the popularity of APE surfactants is their clearly superior cost-effectiveness in the highly competitive global market for paper products. No other surfactants provide such efficient results at such reasonable cost.



## ENVIRONMENTALLY SOUND

APEs are both economical and environmentally sound when used as intended. In fact, greater quantities of other products are needed to achieve the performance levels of APEs resulting in a greater loading of chemicals in the environment. In addition to their effectiveness in making virgin paper, APEs also play an important role in recycling used waste paper by efficiently removing the ink from the paper.

Numerous monitoring studies conducted in the United States, Canada and Europe have shown that when manufacturing is complete, APEs are almost totally eliminated in properly functioning wastewater treatment facilities. Any remaining residue biodegrades rapidly in the presence of oxygen, whether in water, sediment or soil and does not build up in the food chain. Studies of numerous rivers, lakes and sediment downstream from paper-making facilities have shown no harmful effects on fish or other aquatic organisms from the proper discharge of treated APEs.

## NO REFORMULATION NEEDED

Most of today's large paper manufacturers have their own wastewater treatment facilities. Unfortunately, untreated waste (including untreated APE waste) is still sometimes discharged directly into rivers, a practice unacceptable by today's standards. It is this practice that has led to calls for bans or other restrictions on the use of APEs. A product ban, however, necessitating the substitution of other chemicals for APEs does not address the greater environmental harm of *untreated* pulp and paper mill effluents. *It is important to know that the pulp and paper manufacturing plants using APEs do not have to reformulate to effect change.* Rather, through the use of routine wastewater treatment methods, these facilities can continue to safely use these high-value products while reducing their discharge of waste-containing effluent in general.

Based on extensive experience, the APE Research Council provides guidance and assistance in the development of environmentally sound, cost-effective environmental management solutions, which are considerably preferable to the costs of reformulation.

**For More Information call APERC at (202) 637-9071 or visit [www.aperc.org](http://www.aperc.org)**

