

EPA recognizes that pollution prevention, rather than remediation, is the preferred solution to environmental problems. EPA's approach to pollution prevention includes fostering innovative design and production techniques to minimize or eliminate industrial waste, creating fundamental changes in the production and delivery systems that move goods and services to the American consumer, and developing sustainable approaches for using our natural resources.

NONPOLLUTING METAL SURFACE FINISHING

Metal surface finishing is a major industry that uses large quantities of hazardous chemicals and produces significant amounts of hazardous waste. Developing a metal surface finishing process that reduces the amount of chemicals used and the amount of waste generated, while maintaining product output, would benefit the metal finishing industry and the environment.

Pollution Prevention and New Technologies

At ORD, pollution prevention and new technologies research is targeted at the sources that pose the greatest risks to human health and the environment. This research informs regulatory officials, industry, and consumers about pollution prevention opportunities and presents verified, commercial-ready technologies and methods for use in both the public and private sectors.

ORD encourages the development of promising pollution prevention techniques and other technologies.

Under laboratory and field conditions, ORD scientists conducted an assessment of Picklex[®], a nontoxic proprietary product, as an alternative to conventional metal surface pretreatments. The results of both laboratory tests and a field demonstration showed that Picklex[®] can provide effective and efficient metal surface preparation for many metal finishing operations. The Picklex[®] process requires fewer steps, avoids the use of some hazardous chemicals, and generates no hazardous waste. Also, using Picklex[®] eliminates numerous rinsing steps, which means less floor space is needed for rinse tanks. Other advantages of the Picklex[®] process include easy agitation of the solution, slow evaporation rate, and operation at ambient temperatures.

**Commercial Pretreatment
Chromate Conversion Coat**



**Picklex® Pretreatment
Conversion Coat**



**Commercial Pretreatment
Zinc Phosphatizing
Conversion Coat**



Comparison of the steps required for two conventional pretreatment processes with Picklex® pretreatment.



Worker spraying powder coat on test panels.