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MARKET STUDY 2005

Chrome Plating Alternatives:

Thermal Spray, Electroless Plating, and Others

Thintri Inc. announces the release of *Chrome Plating Alternatives*, a new study on alternatives to traditional chrome plating and their markets. This comprehensive examination of the subject discusses the various technologies, the industries in which they will—and won't—be used, and forecasts to 2011.

Thintri Inc.

Thintri Inc. provides business and market intelligence for a wide range of technologies through custom consulting, technology assessments, and published market studies.

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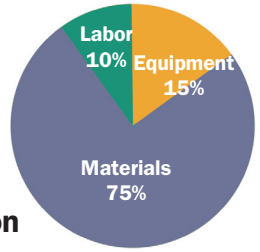

Thermal Spray Coating Cost Segmentation

Background on Chrome Plating Alternatives

Used in a wide range of industries—aerospace, heavy equipment, automotive, papermaking, and others—chrome plating has become increasingly difficult in recent years. Regulations designed to protect against the safety and environmental hazards of hexavalent chrome have increased the cost of chrome plating and burdened facilities performing plating services.

Several alternatives to chrome plating are available. High-velocity oxy-fuel (HVOF) is often favored due to its high performance, relatively low cost, and fast turnaround time. In fact, HVOF will dominate most chrome substitutions. However, several interesting new technologies may establish their own markets within a few years. These include electroless nickel composite plating, which can deposit diamond composite coatings and is not restricted to line-of-sight geometries. Other emerging techniques include explosive bonding, which allows stainless-steel coatings, and electrodeposited nanocrystalline cobalt-phosphorus alloys specifically targeted at inner diameters.

Although many predicted that industry would make a sudden changeover from chrome plating to one of these new technologies, that has failed to happen. Yet some market sectors have made—or are beginning to make—the switch.

And while industry downsizing and consolidation has led to the closure or offshore relocation of as many as half of the chrome plating shops in North America, the chrome plating market today is fairly stable:

- Many chrome plating shops are now thriving
- Many customers have little or no interest in giving up on chrome
- Pending legislative initiatives in North America (such as OSHA's new PELs) are unlikely to dissuade most hard chrome users
- Legislative initiatives have stabilized in Europe
- Asia is largely unconcerned with regulating chrome plating

Suppliers of alternative coating/plating technologies are facing large but highly segmented markets where chrome plating users are resistant to making large capital investments.

Understand the Markets

Success for chrome plating alternatives will depend almost completely on economic competitiveness. At a time of tremendous flux and instability—within the supplier and user communities and the economy at large—the course of chrome alternatives in this decade is by no means clear. The success of chrome alternatives will depend on many factors and ultimately will come down to individual decisions based on economics. Thintri's market study *Chrome Plating Alternatives* examines each alternative technology in detail: its capabilities, its limitations, and its applications. It also explores the potential in each industry and forecasts market growth to 2011.

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Business Intelligence • Technology Assessment

Order your copy today

Chrome Plating Alternatives

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Market Segmentation and Forecasts

Chrome plating, raw materials production

Global chrome plating demand
- Hard chrome
- Decorative chrome

Applications and demand for hard chrome:
- Aerospace
- Heavy equipment
- Oil and gas
- Other industrial

Aerospace hard chrome plating activity, defense vs. commercial

Gas turbine hard chrome markets
- Aerospace
- Industrial land-based turbines

Aerospace hard chrome markets, manufacturing vs. repair

Realistic target markets for chrome plating alternatives

Thermal spray markets and forecasts
- Global markets in thermal spray
- Segmentation by application
- Thermal spray in wear coatings, forecasts
  – Powders
  – Equipment

Thermal spray in wear coatings for chrome replacement, forecasts

Thermal spray, aerospace markets for chrome replacement, forecasts
- Powders
- Equipment
- Outsource vs. in-house processing
- Manufacture vs. repair

Chrome replacement in wear coatings, segmentation by method and forecasts

Chrome replacement in wear coatings, forecasts by application

Geographic segmentation, thermal spray for chrome replacement

Thermal spray, processing cost breakdown

Decorative chrome replacement, forecasts
- Trivalent chrome
- Electroless nickel

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