General Magnaplate

Smart Coating Solutions® Worldwide

BENEFITS

- Withstands continuous operating temperatures over 950°F (510°C), intermittent air temperatures over 1600°F (871°C), and vacuum temperatures to 2400°F (1316°C).
- Ideal for all metals, including steel, copper, brass, and aluminum
- Superior mold release, even under high load bearing pressures (up to 100,000 psi)
- Friction properties as low as 0.13 dynamic and 0.14 static
- Some types will survive 1000 hours of corrosion resistance in an ASTM B-117 salt spray
- Can be used as an additional enhancement for TUFRAM®, NEDOX® or PLASMADIZE® coatings
- Thickness-surface build-up from 0.0001" to 0.002"
- May be made either thermally or electrically non-conductive or conductive, as desired
- Remarkably consistent thermal conductivity
- Recommended for use on injection molds, seal dies, roll dies, gears and bearings, and bag formers

Magnaplate HTR™

Dramatically Increases Mold Release Speed, Efficiency, and Wear Resistance on Metal Parts...Despite High Pressures or High Temperatures

Magnaplate HTR™ increases the release efficiency of steel, copper, brass, aluminum, and other metals used in the fabrication of molds and dies for a wide range of industries.

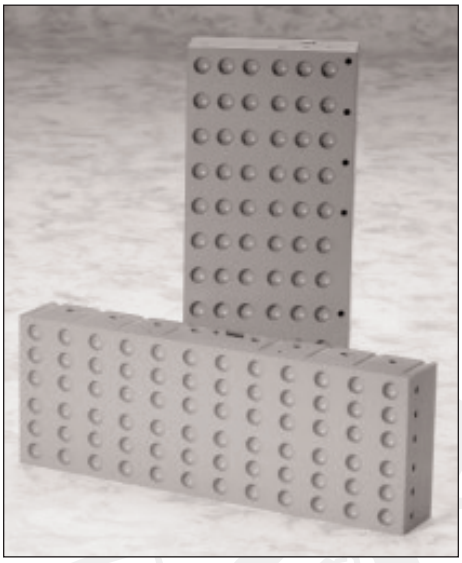
This unique surface enhancement coating creates a permanent, non-stick surface that exhibits a very low coefficient of friction in addition to offering superior wear resistance. The HTR coating can also be modified to meet your special requirements for thermal and/or electrical conductivity.

Initially developed to solve metal performance problems in space flight, Magnaplate-applied coatings are created in a multi-step system which results in overall characteristics that surpass those of any one component used in the process. The coatings are therefore called "synergistic."

MAGNAPLATE HTR OFFERS BENEFITS FOR A WIDE RANGE OF MOLD APPLICATIONS

Worn or damaged molds are often the cause of poor release. HTR's superior resistance to wear makes it ideal for use in plastic and other molding industry applications where mold design or definition is subject to abrasive damage by the material being molded.

Because HTR maintains a uniform, consistent level of thermal conductivity, it also solves release problems that stem from variations in mold surface temperatures. The use of HTR is also recommended where sprays, release additives or other forms of "paint-on" or sprayed-on dry lubricant coatings do not perform properly.



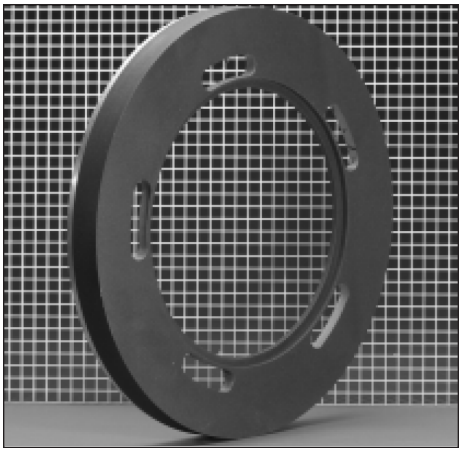
Tufram HTR on an intricate mold for plastics was used by an electronics manufacturer for quick release.

info@magnaplate.com T: 800 852 3301 www.magnaplate.com

In addition to its use as a release agent on molds, HTR is suggested for use on a wide range of high temperature equipment components, including:

- Seal dies at 800°F (427° C)
- Roll dies at 650°F (343°C)
- Chrome replacements at 800°F (427°C)
- Spindle heads and slides at 600°F (316°C)
- Blow molds at 550°F (288°C)

Some industries where HTR's non-stick and wear resistance properties are important include: extruding of plastics; molding or forming of metal parts; and in the manufacture of packaging wraps, films, and other heat-sensitive materials.



Tire mold disk coated in Plasmadize HTR for better release properties.

APPLICATION EXAMPLES

- An injection molding firm makes a polypropylene part with a 0.750" diameter and a 5" long core with 0° draft angle. A mold release had to be sprayed on the core every 10 cycles or else the parts hardened on the core. After treating the core with HTR, over 20,000 cycles were completed before it became necessary to reapply the release spray — 2,000 times more efficient.
- Residue adhering to chrome plated seal bars used by a manufacturer of polyethylene and polypropylene plastic diaper bags was causing product failure. Four bags per minute are pop tested for strength. If a bag fails, the line is shut down in order to clean the seal bars. In addition to eliminating the sticking, HTR increased bag strength by 1.5 pounds and production speeds by 30%.
- An aerospace firm coated a mold cavity set for release at high temperatures with HTR. The firm was molding Polyimid plastic with carbon fiber at 750°F (400°C.) The finished part is used as an insulator for an aircraft braking system.
- A manufacturer of hand creams seals plastic tubes at 450°F (232°C.) When numerous other coatings failed to do the job, they called on HTR and have been using it ever since.
- A maker of pool chemicals in tablet form needed a coating for a tablet punch that operated at room temperature. The company tried other coatings that either did not offer enough release or were too thick and hid the marking on the punch. The company now uses HTR to coat their tablet punches.
- A machine builder needed a coating for drying rails on which expanded plastic rides. They needed a non-stick coating that offered wear resistance and could operate at 550°F (288°C.) HTR is their coating of choice.
- A plastic film manufacturer had a blow mold die coated for wear resistance as well as release at a temperature of 450°F (232°C.) The manufacturer was blowing polyethylene film. Where other products failed, HTR has succeeded.
- A nuclear power plant has a coated drive lead screw for a sandblaster. They needed superior lubricity with little or no residue and very tight tolerance control. They called on HTR to coat the lead screw.
- A soup manufacturer who seals plastic lined foil bags at 400°F (204°C) uses HTR.
- A packaging machine for deodorant contains a spur gear that needed a hard lubricating coating that left no residue. HTR provided that coating.
- A company needed to coat a wave sealer for release at 750°F (400°C.) They were sealing an unknown material which was most likely PTFE. Engineers and chemists thought that HTR would not work. It did and now it's being put on prints and in company specs.