

Find out what your  
competitors already  
know...

**Apex Superlube®**  
makes you money

#### **Improve Your Profitability**

Significantly reduce tool wear  
Scrap rates reduced in pressing *and* sintering  
Improved furnace throughput...  
like buying capacity  
Reduction in press tonnage...  
less new capital needed

#### **Increase Your Sales and Margins**

Higher green and sintered densities allow you to  
compete for new and high margin products.  
Increased physical properties allow for substitu-  
tion of other metal shaping techniques

#### **Easy To Use**

**Graphite Master Batch** makes mixing a breeze

**Apex Enhancer ST** to facilitate use at all  
density ranges.

#### **General Summary**

- Predictable density and lubrication needs
- Excellent ejection and green strength
- Proprietary database of metal compressibility with ideal lubrication

#### **Application Summary**

- Full density range, up to 7.4g/cc
- Elimination of double press/double sinter
- Elimination of cracks in parts, up to 7.4g/cc
- Minimization of ejection problems, up to 7.4g/cc
- Minimization of die wear, up to 7.4g/cc
- Highly efficient/cost effective copper infiltration
- Elimination of cracking and blistering with high nickel formulations.

**APEX**  
ADVANCED TECHNOLOGIES, LLC

U.S. Sales Representatives for Apex Advanced Technologies

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**APEX**  
ADVANCED TECHNOLOGIES, LLC  
State of the Art Lubricants and Binders

**Apex**  
**Superlube®**  
Let It Make Money For You

#### **Technology Base**

**Apex Superlube®**  
**Apex Enhancer ST**  
**Custom Superlube®/graphite mixes**  
**Flow Enhanced Superlube®/graphite mixes**  
**Enhanced Flow Enhancer ST**  
**Master Batch Superlube®/custom additives**  
**(Fe3P, Bi, Mn, Si, V)**  
**Agglomerated Spherical gas atomized high alloys**  
**(Cr, Ni, Co)**  
**Near Full density activation technology**  
**(S.S., Low alloy, Malleable iron, Al, Cu)**

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**Apex Superlube®/Enhancer ST**  
**State of the Art Lubricant and Binders for the P/M Industry**

**Density < 6.9g/cc**

**Apex Enhancer ST**

Fixed Additions  
Excellent Green Strength  
Excellent Lubricity  
Minimization of die wear  
Elimination of Zinc-based lubricants  
Good compressibility  
Minimization of cracking  
Minimization of chipping  
Handling defects  
Environmentally friendly  
Efficient for Iron, Stainless Steel and  
Copper based alloy  
Part temperature needs to be a minimum 120 ° F  
to maximum 180° F to function correctly

**Apex**  
**Superlube**®

Let It Make Money For You

**Density > 6.9 to 7.1g/cc**

**Apex Superlube®**  
**Apex Enhancer ST**

Calculated Additions  
Excellent Lubricity  
Minimization of die wear  
Excellent Green Strength  
Up to 50% reduction in ejection forces  
Effective copper infiltration  
Elimination of blistering with nickel formulations  
Elimination of Zinc-based lubricants  
Clean burn/Environmentally friendly  
Large part capability—up to 9 lbs.

  
**APEX**  
**ADVANCED TECHNOLOGIES, LLC**  
State of the Art Lubricants and Binders

**Density > 7.1g/cc**

**Apex Superlube®**  
**Apex Enhancer ST**

Calculated Additions/Low use levels ≤ 0.4%  
Enhancer ST for volume adjustments  
Green Density results comparable to die wall, hot  
compaction, warm compaction or double pressing  
Physical properties improved as much as 15-20%  
Elimination of Density Gradients  
Dimensional stability and resulting  
scrap rates improved  
Excellent Lubricity  
Minimization of die wear  
Excellent Green Strength  
Increased compressibility  
Up to 25% reduction in compression forces  
Densities up to 7.4g/cc  
Effective copper infiltration  
Elimination of blistering with nickel formulations  
Elimination of double pressings  
Clean burn/Environmentally friendly  
Large part capability—up to 9 lbs.

Superlube® is a registered  
trademark of  
**Apex Advanced Technologies LLC.**  
Patents #6,679,935 & #7,183,242