Zschimmer & Schwarz

LUBRICANTS

lexolube
synthetic esters

SYNTRAN®

Metal Forming Lubricant

ZSCHIMMER & SCHWARZ

SYNTRAN Metal forming Lubricants

A water-based emulsion polymer coating is applied over sheet metal, forming a solid film on the surface.

The dry polymer coating provides controlled and consistent lubrication when forming or stamping.

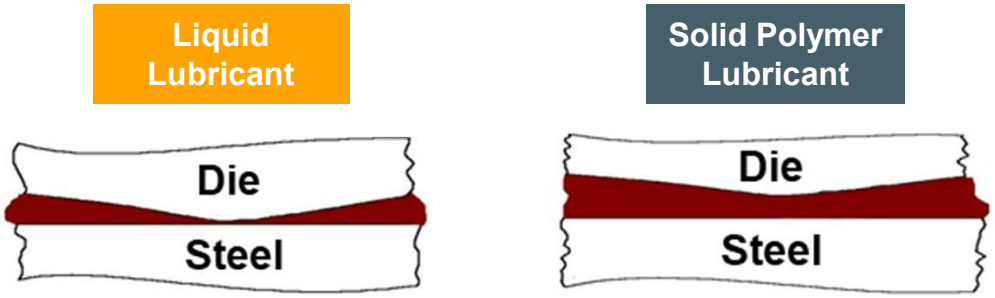
Product benefits include:

- Part Surface Finish Quality
- Production Cost Savings
- Multi-metal Functionality
- Improved Manufacturing Environment
- Worker Safety

Application Advantage

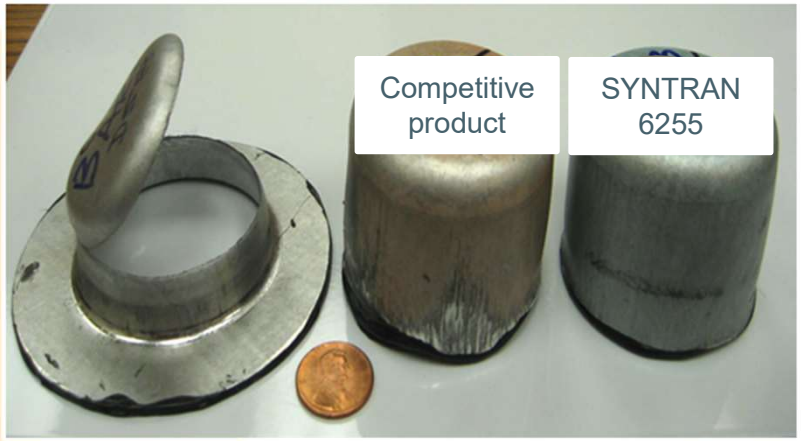
- A liquid lubricant flows away from high pressure areas during metal forming operations

- The solid polymer lubricant stays in place and provides lubricating film thickness for better protection of the part surface and the tool



Quality Improvements

- The low friction polymer film provides better formability, and reduces defects from:
  - Galling due to metal-on-metal contact
  - Frictional damage to plating
  - Deep draw part failures and high tool wear



Liquid lube failure on 2“ circular cut

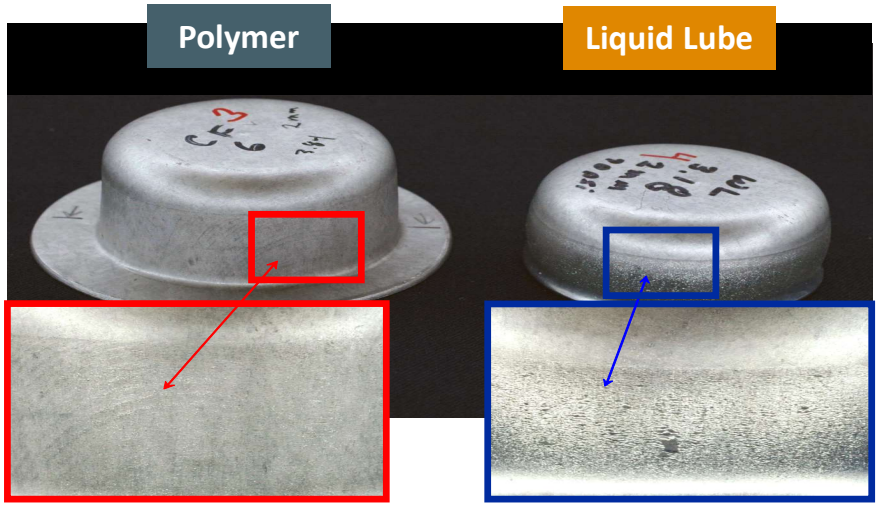
Liquid lubricant vs. Dry lubricant comparison on steel sheet

Standard oil lubricant

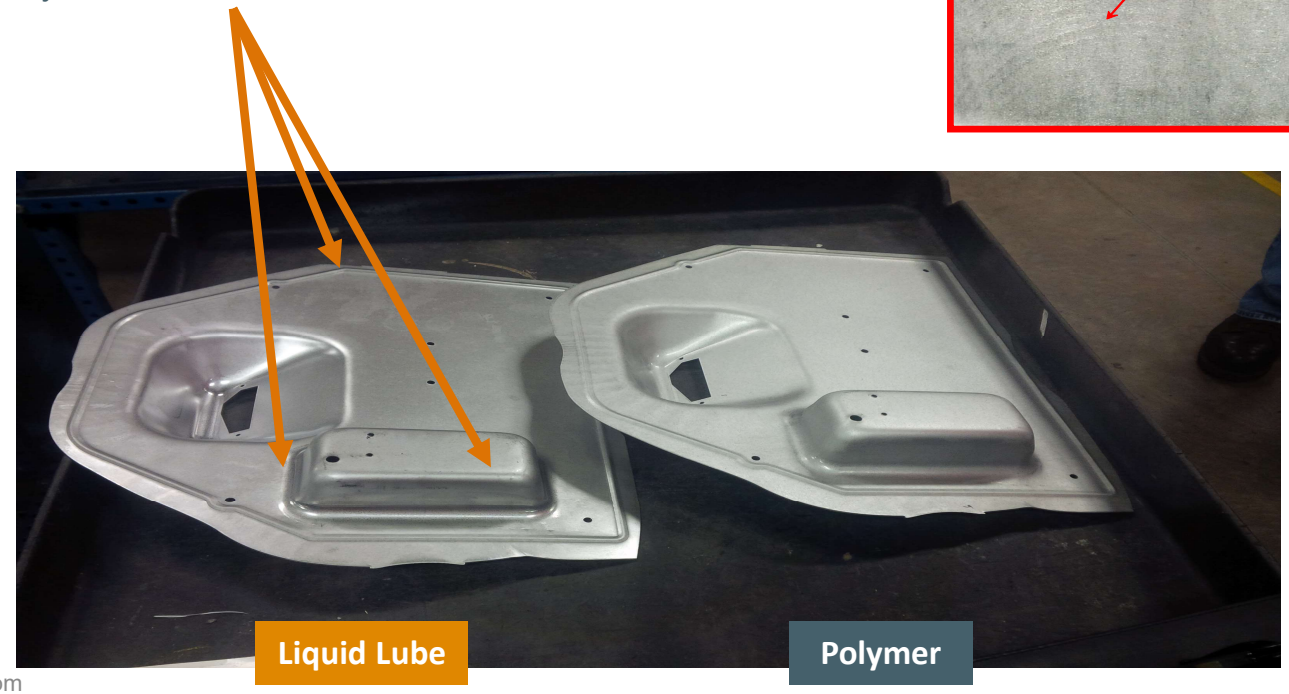
SYNTRAN® 6255

Application Examples

►**Enhanced formability : solid polymer film vs. liquid lubricant**



"Shiny" areas indicate metal to metal contact

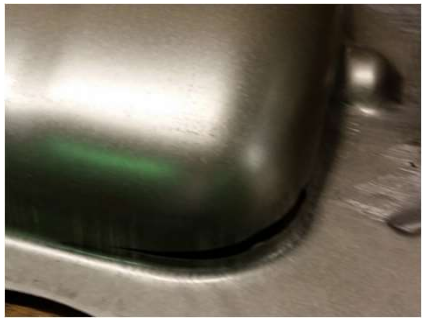


Operational Cost Reduction

SYNTRAN polymer film lubrication technology will reduce costs by:

- Reducing defects due to galling, flaking, and forming failures.





- Extending the life of the molds and dies used for forming or stamping.

Operational Cost Reduction

Polymer film lubrication technology will reduce costs by:

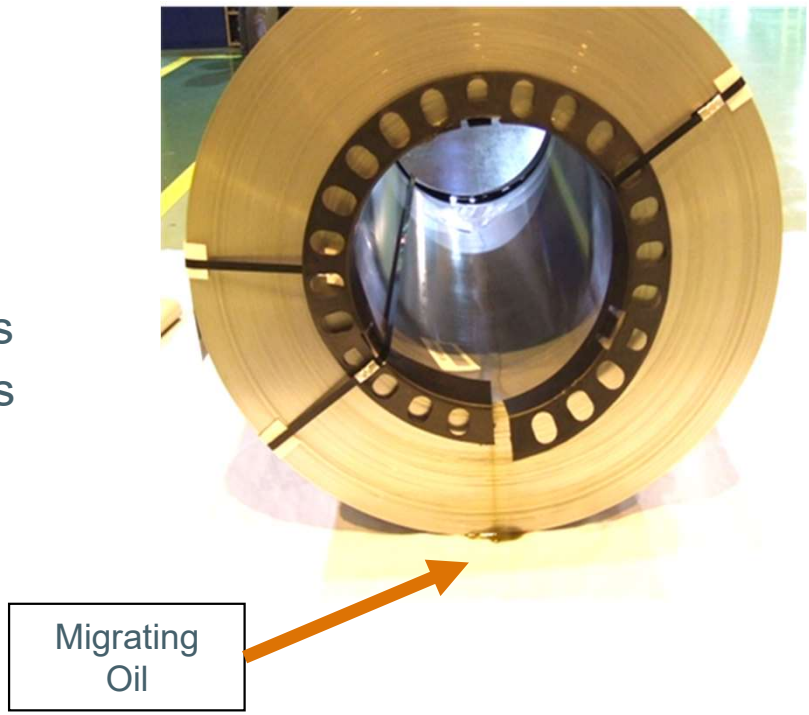
- Increasing throughput or decreasing the number of “hits” needed to form or stamp a part.

- Additional scuff/surface protection for parts while handling (until the film is removed)

Benefits to the Manufacturing Environment

The polymer film stays on the metal surface

- Eliminates fire hazards and necessary equipment
- Will not leak or migrate out / off parts
- Eliminates oil mist air quality hazards, slip hazards and improves overall workplace cleanliness
- Polymers are readily captured in waste streams
- No Chlorine, Barium, Sulfur or Phosphorus



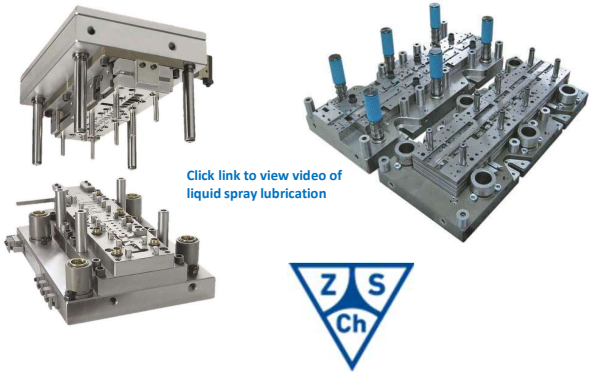
Safety Improvements

The elimination of liquid lubricants will help prevent:

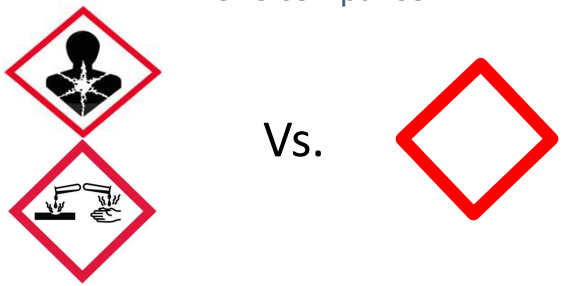
- Slip and fall hazards around forming or stamping presses or any area where parts are stored or handled.

- Air quality and skin contact concerns for personnel working in and around areas where forming oil is used, especially when it must be sprayed on the part several times as part of a multi-press or progressive die operation.

Slip and fall areas



Draw Lube 58 vs. SYNTRAN
SDS comparison



Lubricants

PRODUCT SELECTION

Commercially Available
SYNTRAN emulsion polymer products

▶ SYNTRAN® 6250

- Emulsion lubricant with higher solids and viscosity designed to be applied at higher drying temperatures and shorter durations between application and use.

▶ SYNTRAN® 6255

- Emulsion lubricant designed to be applied in a steel mill process with low drying temperatures but longer durations between application and use.

SYNTRAN® Properties

SYNTRAN® 6250

Physical form: translucent liquid

Solid content: 28.0%

pH value: 7.5

Viscosity: <18 seconds Zahn #2 cup

Density: 1.058

Dried film weight: 1.4 gsm +/- per side

(Varies based on surface texture)

SYNTRAN® 6255

Physical form: translucent liquid

Solid content: 25.0%

pH value: 7.0

Viscosity: <15.5 seconds Zahn #2 cup

Density: 1.058

Dried film weight: 1.4 gsm +/- per side

(Varies based on surface texture)

Advantages of Emulsion Polymer Lubricant Technology After Coating

- Provides temporary low level corrosion resistance
- Protects parts from scuffs and defects after forming
- Creates a dry film on the metal surface that can be touched
- No chlorinated paraffins or S/P compounds in waste streams
- Is easily removed using warm alkaline detergent

Disadvantages of polymer lubricants vs. liquid lubricants

- Emulsion polymer will cost more per ton than liquid oil
- Application rate must be monitored for consistent film thickness to avoid overuse
- Can form a residue on application equipment when allowed to dry

Potential savings using SYNTRAN® 6250 and 6255

- Reduces the need for reapplication of lubricants
- Eliminates oil mist improving the operating area environment
- Reduces slip and fall accidents reducing the need for certain PPE protection
- Reduces waste and cleanup
- Reduces the number of part defects
- Increases the production throughput
- One OEM placed the savings value at $15.00 USD per ton (body panel steel)

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