Leader in surface coatings for critical components
### About EM Coatings Services & Everlube Products

EM Coatings Services & Everlube Products have been supplying, designing and manufacturing highly engineered coating solutions for a diverse range of markets for over 40 years.

We have a dedicated and highly experienced technical team operating from our state-of-the-art facility. This enables us to deliver the highest levels of quality, service and technical support. Our dedication to customer service is reflected through our long-term environmental compliance and in addition to our central UK operation based in Evesham Worcestershire E/M coating facilities, enabling us to provide our customers with the very best in quality assurance.

Our range of engineered products and services are utilised in various sectors, ranging from multi-national and OEM organisations to small specialist engineering and manufacturing companies. As a pioneer in the original use of dry film lubricating coatings, we are involved in a wide range of markets to prevent pick up, galling & seizure. Used for threaded components we also utilise solid lubricant materials such as molybdenum-disulphide, graphite, Teflon® and others.

EM Coatings Services is a subsidiary of Contico-Bright Surface Technologies (CBST) who provide highly engineered processes, enabling the production of elite coating systems and coatings services to improve the life, strength and performance of critical components. These are delivered through a widespread network of over 70 dedicated operational facilities and provide not only coating industries such as aerospace, automotive, power generation, oil & gas, mining & defence, precision engineering, medical and other specialty industries.

Our coatings are designed and manufactured to exacting specifications with a complete range of specifications, quality, reliability and performance. CBST works with your engineering and production teams on specific project challenges and improve the life and performance of your products.

In addition to our coating selection does not meet your engineering or industrial specification, we can document availability and in-house specialist chemists that can develop individual cost effective coatings solutions to fit your requirements, consult us to find out more.

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| Type | Number | Base Oil | Solvent Type | Temp Range | Ponder | DFT | Capacity | Pre-treatment | Application | Protection | Full Cure | Colour/Full Cure | Special Approvals | Description | Typical Applications |
|------|--------|---------|--------------|------------|--------|-----|---------|-------------|-------------|-------------|----------|-----------|-------------------|-------------------|------------|-------------------|
| Thermal Core | | | | | | | | | | | | | | | |
| | 177 | Graphite Silicone | Paint Thinner | -73°C - 260°C | 7 - 18 | 50,000 psi | N/A | N/A | N/A | N/A | N/A | N/A | 300 hrs | N/A | N/A | N/A |
| | 178 | Graphite Titanate | Paint Thinner | -73°C - 260°C | 7 - 18 | 50,000 psi | N/A | N/A | N/A | N/A | N/A | N/A | 300 hrs | N/A | N/A | N/A |
| | 179 | Molybdenum Disulphide | Paint Thinner | -73°C - 260°C | 7 - 18 | 50,000 psi | N/A | N/A | N/A | N/A | N/A | N/A | 300 hrs | N/A | N/A | N/A |

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|------|--------|---------|--------------|------------|--------|-----|---------|-------------|-------------|-------------|----------|-----------|-------------------|-------------------|------------|-------------------|
| Air Core | | | | | | | | | | | | | | | |
| | 196 | None | Paint Thinner | -73°C - 150°C | 7 - 25 | 20,000 psi | N/A | N/A | N/A | N/A | N/A | N/A | 200 hrs | N/A | N/A | N/A |

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|------|--------|---------|--------------|------------|--------|-----|---------|-------------|-------------|-------------|----------|-----------|-------------------|-------------------|------------|-------------------|
| Protective | | | | | | | | | | | | | | | |
What are Dry Film Lubricants?

Dry Film Lubricants are complex coatings made up of lubricating additives in a continuous matrix of a binder. This tough coating layer provides low frictional resistance between two mating parts. The lubricating additives fit into two main categories; crystalline lattice (lamella) type structures such as Molybdenum Disulphide, Tungsten Disulphide and Graphite or Fluorocarbons such as PTFE. These varying pigments (additives) can be combined with a wide range of resins to achieve different properties, such as: high load bearing, very low coefficient of friction, high temperature, chemical resistance, corrosion resistance, abrasion resistance.

Why are Dry Film Lubricants used?

Dry Film Lubricants can be used for a number of different reasons. They are often used when liquid lubricants (grease/oil) cannot be used. Liquid lubricants have a relatively narrow band of usable conditions. Once out of this band (due to temperature, load, wear, migration, debris) the liquid can change fluid state and no longer provide protection. In these conditions a Dry Film Lubricant will remain intact and provide continuous lubrication.

How do ‘Crystalline Lattice’ (MoS₂) Dry Film Lubricants work?

Molybdenum Disulphide (MoS₂) is a good example. The structure of MoS₂ can be seen in Figure 1. Although the bonds between the Molybdenum and the sulphur atoms are strong, the bonding between the crystalline lattice layers (sulphur to sulphur) are weak. This means the shear forces between the layers are very low. This shearing at the weak shear planes, provides the lubricity between sliding surfaces. This lubrication mechanism is the same for Tungsten Disulphide and Graphite.

How do PTFE coatings work?

There are three key factors that give PTFE its unique ‘anti stick’ properties. They all derive from its chemical structure, displayed in Figure 2. PTFE is made up of a chain of carbon atoms, with two fluorine atoms on each carbon. The first thing that is noted about the structure in Figure 2, is that the fluorine atoms are far larger than the carbon atoms, effectively shielding them. Therefore, it's almost impossible for any other chemical structure to gain access to the carbon atoms. The second and key factor is the bond strength between the carbon and the fluorine. Even if another atom or substance could gain access, the carbon-to-fluorine bonds have an extremely high bond dissociation energy (BDE) of up to 544 kJ/mol., making them almost unbreakable. The third factor is that fluorine is naturally an ‘anti social’ atom, which physically wants to repel other atoms. The combination of these factors gives PTFE coatings their ultra low coefficient of friction and excellent chemical resistance.
COATING SERVICES

- **Dry film lubricants** - MoS₂, PTFE, Graphite, WS₂
- **Coatings** for corrosion, chemical & environmental protection
- **Titanium anodising**
- **Zinc rich coatings** for corrosion protection
- **Impingement coating processes** for ultra thin solid film lubricants
- **Nonstick/release coatings** for low coefficients of friction
- **Primers** for rubber and plastics for sound absorbing and dampening materials
- **High temperature resistant coatings**
- **Rare earth magnet coatings**
- **Coatings for EMI/RFI shielding** provide highly conductive coatings and platings to control electromagnetic interference
- **Ultra thin conformal parylene coating** to reduce friction and protect against contamination
- **Pre-treatments including** Ti Anodising, Phosphate Conversion Coating and Chilled Iron Blasting, Aluminum Oxide Blasting and Vapour Degreasing

MARKETS

- Aerospace
- Agriculture
- Automotive
- Chemical
- Defence
- Electronics
- Food
- Marine
- Medical
- Mining/quarrying
- Motorsport
- Petrochemical
- Power Generation
- Printing
- Rail
- Telecommunications
- Textile