

## “WATER-HATING” COATING ALLOWS TRUCK MAKER TO MEET LAUNCH DEADLINE

### The Challenge

A non-domestic auto manufacturer discovered a part failure during cold cycle testing which would have prevented the launch of a new truck that was scheduled just two months away. In cold weather, ice buildup would cause the rear lift gate to function improperly.

### The Solution

DECC identified a low cure phenolic resin with PTFE release properties that would create a hydrophobic (water-hating) surface. Using an electrostatic application method, the coating was applied to the affected latch components.

### The Result

The new coating prevented ice from sticking to the plated surfaces of the latch components. This allowed the rear lift gate to function the same in all atmospheric conditions. DECC’s coating knowledge and fast response provided a solution that solved the problem in time for the scheduled launch.



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## ALTERNATIVE COATING APPLICATION TECHNOLOGY MEETS CRITICAL EPA REQUIREMENTS WHILE SAVING MONEY

### The Challenge

A diesel engine manufacturer needed the inside of a valve coated to protect from corrosion as a result of new EPA requirements. Conventional wisdom was that powder coating of the aluminum castings was the best option to deal with the corrosive byproduct caused by the new regulations. The customer asked DECC if that thinking was correct or a better solution could be found.

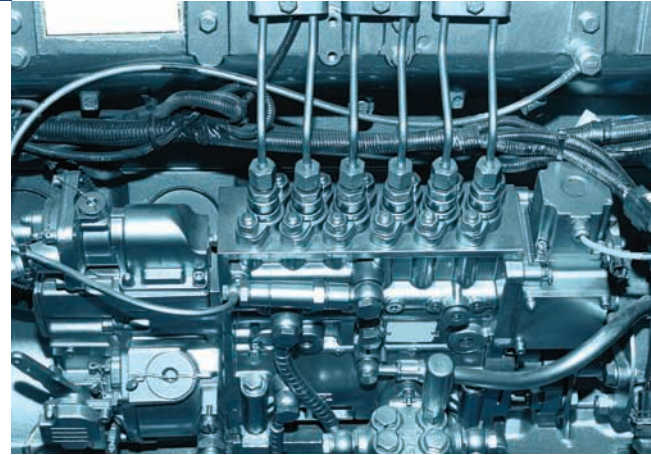
### The Solution

After various tests, DECC determined that an alternative wet coat solution could be applied to aluminum. Parallel studies demonstrated the effectiveness of the wet coat approach. The customer approved the alternative application technique.

### The Result

The move to the wet coat application drove six-way cost savings while meeting the new standards.

1. Powder coatings cannot be reworked while wet coatings can, thereby reducing rejects.
2. Powder coatings can migrate during processing, thereby missing quality standards. Wet coating does not migrate, ultimately reducing scrap rates.
3. Wet coating is an easier process to control and therefore faster, which reduces cycle times and costs.



4. The wet coat solution allowed for the use of lighter and less exotic metals, lowering material and machining costs.
5. Lighter metals contribute to longer part and engine life.
6. DECC and the customer worked together to install a state-of-the-art robotic application line which was implemented under budget, as well.

This success story highlights the “holistic” approach DECC takes to customer challenges. Problem-solving goes beyond coating selection and application and extends into a full analysis of the best total solution for a given job. Proving that, sometimes, conventional wisdom isn’t wisdom at all.



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**COATING SOLUTIONS  
SIGNIFICANTLY REDUCE  
QUALITY ISSUES AND DOWNTIME  
FOR TIRE MANUFACTURER**

**The Challenge**

A tire manufacturer was having problems with a rubber compound sticking to bead rings, causing quality problems and excessive equipment cleaning time between cycles. They were also dealing with an issue resulting from extruded rubber making contact with a 4' x 8' panel of aluminum, causing an uneven folding pattern because the rubber would often stick and collect at the end of the panel.

**The Solution**

To solve the bead ring problem, DECC specified a PTFE/FEP dry film lubricant with excellent release and abrasion resistance properties. The best option for the aluminum panels was a two-component, phenolic low cure PTFE resin coating which lowered the friction coefficient.

**The Result**

Issues related to the bead rings were dramatically decreased and downtime from too-frequent equipment cleanings was eliminated. The coating chosen for the aluminum panels eliminated the folding pattern problem and they have remained trouble-free for more than a full year, at last report.



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## “IMPOSSIBLE” COMPLEX, ANODIZED, ALUMINUM PART COATING SUCCESS

### The Challenge

An aerospace industry company came with a coating problem that hadn't been solved after scrapping \$10,000 worth of product. The part was an intricately designed aluminum piece that held ammunition shells for a fighter plane, capable of firing 1,000 rounds in less than five seconds. The aluminum was anodized before the coating application and this presented two problems. First, surface preparation before coating was extremely difficult to achieve without hurting the integrity of the anodized surface. Second, any quality defects after coating could not be reworked, driving up scrap rates. Adding to the challenge were the extremely stringent military standards that had to be met.

### The Solution

DECC determined that using aluminum oxide to prep the surface of the parts would provide the performance without damaging the anodized surface. To avoid coating quality defects, DECC designed an alternative application process involving parts resting on trays that resulted in a finished coat within the demanding specifications.

### The Result

The combination of new surface prep and coating process has met demanding quality specifications without scrapping expensive in-process material. Also, the DECC solution is more economical than the route suggested by the previous supplier who had also found the assignment to be “impossible.”



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## WHEN ONE CALL MET THE COATING NEED AND STREAMLINED THE SUPPLY CHAIN

### The Challenge

The military was having a problem with the fuel shut-off valve that refuels military helicopters. The coating solution also needed to prevent fuel leak disasters under the harshest environments – from the windblown, sandy desert floor to the frigid temperatures at high altitudes. We also recognized the need for a Class A grade surface after the coating application.

### The Solution

DECC sourced and tested an abrasion resistant coating with excellent release properties to ensure that the part would not only be durable, but avoid the potential for seizing upon operation. DECC also developed a post-coating buffing process to ensure the surface met the Grade A rating requirement. Providing the final surface finishing is not typical of the vast majority of coating services providers.

### The Result

The most demanding quality specifications were met while saving the customer significant time and money by avoiding the need to package and ship the parts to a second vendor to produce the Class A surface.



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**THERE'S CRITICAL QUALITY, THEN  
THERE'S THE CASE OF THE PART  
USED IN OPEN HEART SURGERY**

**The Challenge**

A California manufacturer of medical instruments was in a dire situation. Multiple coating service providers had been unable to meet the requirements for a part used during open heart surgery. The part is applied directly to the heart, keeping it beating but paralyzing the area to which it is connected, allowing the surgeon to operate. The surface of the part had to be prepped and cleaned, an adhesive coating applied in less than one ten thousandths of an inch thickness, and measured to make sure the thickness was achieved. Any variation in thickness could result in failure of the plastic over the molding that was bonded to the device, thereby causing the instrument to malfunction during surgery.

**The Solution**

To achieve the uniform thickness required and allow for accurate measurement, DECC designed a unique masking fixture for racking the parts. An ultrasonic cleaner was purchased along with a Back Scatter eddy current device capable of measuring to the demanding tolerances.

**The Result**

An application challenge that had defeated many other coating applicators was met in a remarkably short period of time. Quality parts were processed on schedule with extremely low reject rates for such a demanding set of specifications and process steps. That's why those with hyper-critical quality standards choose DECC. Results that are difficult to achieve require the combination of coating and process engineering expertise that our unique staff can bring to bear on your challenge.



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**WHY FOOD PROCESSOR WITH OWN COATING CAPABILITY TURNED TO DECC**

**The Challenge**

A food production company needed large food dies applied with a high release, FDA approved coating to avoid sticking during production. The water-based coating needed to be applied in a very precise manner so the entire substrate was covered, but not over-covered as it would blister during curing, ultimately ruining the part and costing significant money to rework. In this case the coating had to be hand sprayed as the dies were too big for robotic application.

**The Solution**

Our two application specialists – with nearly 50 years combined experience dealing with demanding coating application requirements – assured fast, trouble-free service by applying the coating in DECC’s R&D department, one of the largest in the industry.

**The Result**

All quality standards for these parts have been met with a low incidence of rework required. Further, the cost per part is dramatically lower than would be the case had the customer sourced a provider with a robotic operation capable of handling such large items. It should be noted that this customer has since installed their own coating operation, but continues to send the dies to us. They’ve come to realize that the level of skill and experience we have on staff cannot be duplicated in-house.



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## COATING SOLUTION ELIMINATES WARRANTY ISSUES AND EXTENDS LIFE FOR FURNITURE MANUFACTURER

### The Challenge

An office furniture manufacturer was experiencing high warranty claims due to premature wear on the vertical riser for office chairs. The riser was plated, then a traditional lubricant applied. The lubricant attracted dust and dirt which acted as an abrasive during up and down cycling and side-to-side movement of the chair. The result was premature wear that impaired the smooth movement of the chair, as well as increased warranty claims and repairs.

### The Solution

Clearly, the plating/greasing process was the root cause of the problem. The better alternative was the selection and application of an abrasion resistant, Teflon-loaded release coating. Applied electrostatically, the coating achieved a uniform thickness of .3 to .8 mils from top to bottom and around the diameter of the riser.

### The Result

After 100,000 cycles under a load simulation, the customer's quality and service life objectives had clearly been met. Although the coating exhibited minor wear, chair performance was not adversely affected. Our customer has saved significant amounts of money by eliminating warranty claims while repairing their image by solving the problem of an under-performing product.



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