



Leonardo Helicopters' REACH puzzle solved – the aerospace supplier decided for SAFECHEM's COMPLEASE™ Chemical Leasing with DOWPER™* MC

ECONOMICALLY AND ENVIRONMENTALLY EFFICIENT SURFACE CLEANING WITH MAXIMUM PERFORMANCE

The aerospace industry has high requirements when it comes to the cleanliness of parts. Chlorinated solvents are a proven and well-researched solution for clean parts with low surface tension – even with a wide range of contaminants. However, many manufactures in the last years have been evaluating alternatives to their established processes. So did Leonardo Helicopters, one of the world's leading helicopter manufacturers, at their site in Yeovil (UK). They decided for DOWPER™* MC Perchloroethylene and COMPLEASE™, the Chemical Leasing model from SAFECHEM. It helps to ensure that the highest requirements to both component cleanliness and health, safety and the environment (HSE) are met. At the same time, the service-oriented leasing model provides process optimisation to reliably produce top products.

Leonardo Helicopters, with its UK home in Yeovil, manages the design, development, test, production, support and sales of the most complete range of rotorcraft available for commercial, public utility, security and defence use. The company brings together the past experience of Agusta in Italy and Westland in the UK, whose origins as aircraft manufacturers date back to the beginning of the last century, establishing the European aeronautics industry. In 2001, the two companies joined together to create AgustaWestland, which today as Leonardo Helicopters, is one of the world's leading helicopter manufacturers.

Sustainability and economic benefits – main drivers to a new cleaning solution

Leonardo, being acutely aware of their environmental responsibilities, had been using NEU-TRI™° E Trichloroethylene in SAFECHEM's SAFE-TAINER™ Systems for many years, in an environmentally-responsible manner – with large, non-regenerating carbon abatement systems. That led to annual carbon costs similar to those associated with the supply and disposal of solvent. So, when Trichloroethylene was added to the candidate list of Annex XIV of the REACH legislation in 2010 as a substance of very high concern, leading to formal classification in 2013, Leonardo started to investigate potential alternatives for the solvent that had been the bed rock of aerospace approvals for many years.

Potential alternatives: Aqueous or modified alcohols

Aqueous cleaning systems were widely in use across the Yeovil site having replaced numerous open topped plants over several years.

However, for critical applications, particularly cleaning prior to NDT processes, the low surface tension of solvent was felt to be a significant advantage. Solvent options considered were Perchloroethylene (DOWPER™* MC) and DOWCLENETM™* 1601 Modified Alcohols. The CoRAP review of 2014 gave reassurance over the future of Perchloroethylene. All options had not only to comply with the strict aerospace approvals that Leonardo and their customers expected, but they needed to be cost-effective and provide a consistency of results, too.



The search for the right solution

Peter O'Shea, Capital Investment Project Manager, Transmissions Centre of Excellence and Anthony Brown, Production Laboratory Manager, Transmissions Centre of Excellence, began the investigation for the perfect solution. The system needed to provide a cost effective, repeatable solution without issues of environmental or operator safety. Peter O'Shea confirmed that "processing time, consistent results and the low surface tension of solvent all were important." This requires the right combination of plant and cleaning fluid to go with it. The German machine manufacturer Höckh came up with an innovative two chamber system that would enable parts to be processed in whichever sized chamber was best suited to particular components. If needed, both could be utilised at the same time, although with slightly extended process time. This so-called Multiclean plant with a filling volume of 2.000 litres was installed at Leonardo's Yeovil site in autumn 2016.

COMPLEASE™ Chemical Leasing: Individual cost model by SAFECEM

The chemistry option to be used was confirmed to be DOWPER™* MC Perchloroethylene which has widespread aerospace approvals. Supplies would be via a COMPLEASE™ Chemical Leasing agreement. This enabled Leonardo to access everything that would be needed to ensure smooth running of the process with known monthly cost for any 12-month period. Other than the 2.000 litre first fill, the SAFECEM experts calculated a greatly reduced volume of solvent needed compared to previous consumption in traditional enclosed plants. To ensure even more certainty for the first years of operation a bath exchange premium was built into the offer, which allowed Leonardo to be secure that in the event of the need for a complete exchange of solvent, the cost for supply of new solvent and disposal of the old material would be covered.

Solvent consumption much lower than expected

Despite extra work compared to that originally planned, after two years of using DOWPER™* MC in the Höckh Multisolvant plant, solvent consumption is incredibly low. "We had planned for three fresh SAFE-TAINER™ Systems, which amounts to 600 litres, to be filled in the first 12 months. But now, two years after the installation, we realized that we have just finished the first 200 litre DOWPER™* MC. This is extremely pleasing, from both a financial perspective but just as importantly also from an environmental one", confirms Anthony Brown.

What are the reasons for the solvent to remain in excellent condition? Weekly testing of the solvent using MAXICHECK™ Test Kits and adjustments with MAXISTAB™ Stabilisers if necessary. The bath exchange premium included in the COMPLEASE™ Chemical Leasing offer has not been utilized by Leonardo. Peter O'Shea explains: "The solvent remains in excellent condition, so there was no need to change the bath. But the security of knowing that the cost implication was addressed and prepared for in case anything untoward should happen is something that we would look to take forward now that the operation and running of the plant is fully in the hands of the operational department."

Conclusion after two years of COMPLEASE™ with DOWPER™* MC: It was the right decision

Both Mr Brown and Mr O'Shea are firmly of the opinion that Leonardo made the right choice with solvent processing. Asked whether they would make the same choice today, the answer from both was a resounding "Yes".



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