



Image: Ecoclean GmbH

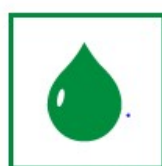
Castrol Techniclean XBC Cleaner has companies convinced

Powerful and environmentally friendly Industrial Cleaner

The production industry is one of the driving forces behind the European economy, mainly in Germany, one of the largest markets in the industrial sector. New technologies such as 3D printing, artificial intelligence and Industry 4.0 are significantly changing the future of production. Moreover, customer demands are different now than they were ten years ago. In addition to new technologies and production methods, topics such as environmental protection and recycling are increasingly becoming a decision-making criterion for a company and its products. This includes not only products manufactured in a sustainable manner but also the disposal of any accumulating waste products. This is what is keeping metal processing companies competitive long term in the global marketplace.



SUSTAINABILITY



WATER SAVING



RECYCLING

New and amended regulations and guidelines are challenging for the entire process chain of metal processing, for example in machining with cooling lubricants as well as in component cleaning.

Recently, the legislative and regulatory examples have tightened the requirements for developers of industrial processing products:

- Regulation on the Registration, Evaluation, Authorisation and Restriction of Chemical Substances (REACH)
- Regulation on the Classification, Labelling and Packaging of Chemical Substances and Mixtures (CLP)
- Biocidal Products Regulation (BPR)
- Continuous ATP (Adaptations to Technical Progress)

These and further national regulations such as the Technical Rules for Hazardous Substances (TRGS) are already affecting the entire industry now. This applies particularly to companies which already find it difficult to come up with the best product solution for their scope of application.

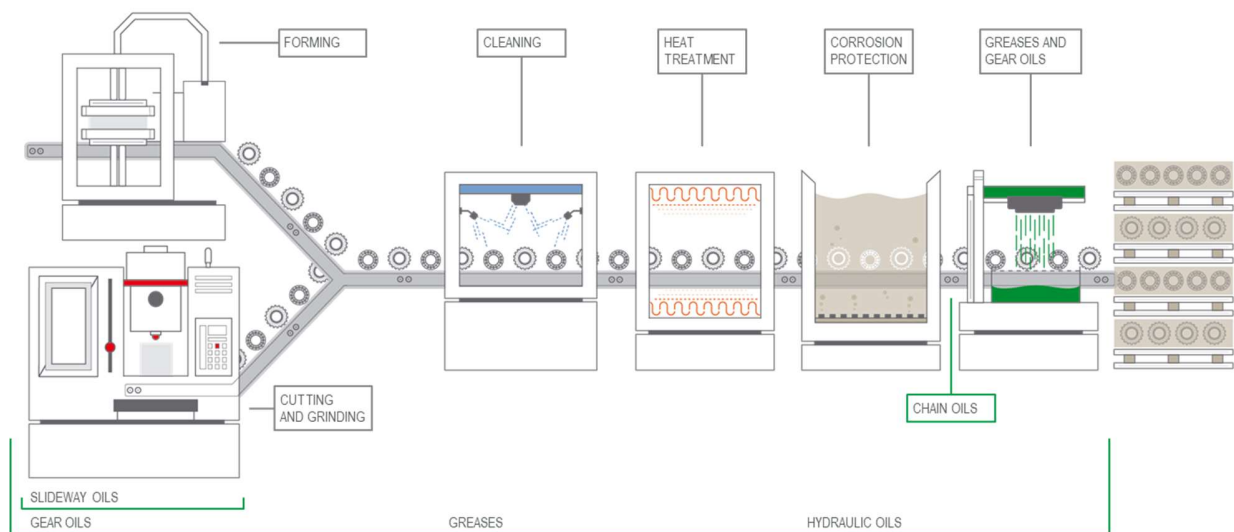
The emphasis is on sustainability

Because the challenges in production companies are no longer just about the manufacturing of products and maximum output. New regulations and standards are being introduced worldwide with regard to environmental protection, waste reduction and the exploitation of resources and their implementation is challenging companies. This includes a reduction in water consumption, which is the main focus. The Organization for Economic Cooperation and Development (OECD) closely links water consumption to energy and food production. Since water is a finite resource, the production sector is competing in this aspect directly and fiercely with other sectors - and nutrition will always take precedence over the manufacturing of machinery or components. Especially as these demands will be growing exponentially until 2050: The OECD expects an increase of 55 percent in the population's need for water but it expects an increase of 400 percent for the manufacturing industry. Therefore, the manufacturing industry is facing the challenge of protecting its growth and economic success while reducing water consumption significantly at the same time.

In addition, hydrocarbons also need to be reduced, because the requirements for their disposal and treatment are becoming increasingly stricter and the costs associated with this are getting higher. Therefore, longer lifetimes of process substances such as lubricants and cleaning agents become enormously important. But also less time-consuming maintenance work and the possibility of reprocessing are important considerations in production facilities' decisions on certain process fluids.

Castrol is investing in sustainability with its new products

For years, Castrol has been investing in producing products sustainably and in saving resources. At the same time, Castrol products should support companies in saving water and in operating in a more environmentally friendly manner. Therefore, Castrol has recently launched a product range of recyclable industrial cleaners for the process chain of the metalworking industry: **Castrol Techniclean XBC**. This new high performance product family enables metal processing companies to increase productivity with a simultaneous reduction of up to 60 percent¹ of waste disposal costs¹, low water consumption and an improvement of the work environment overall.



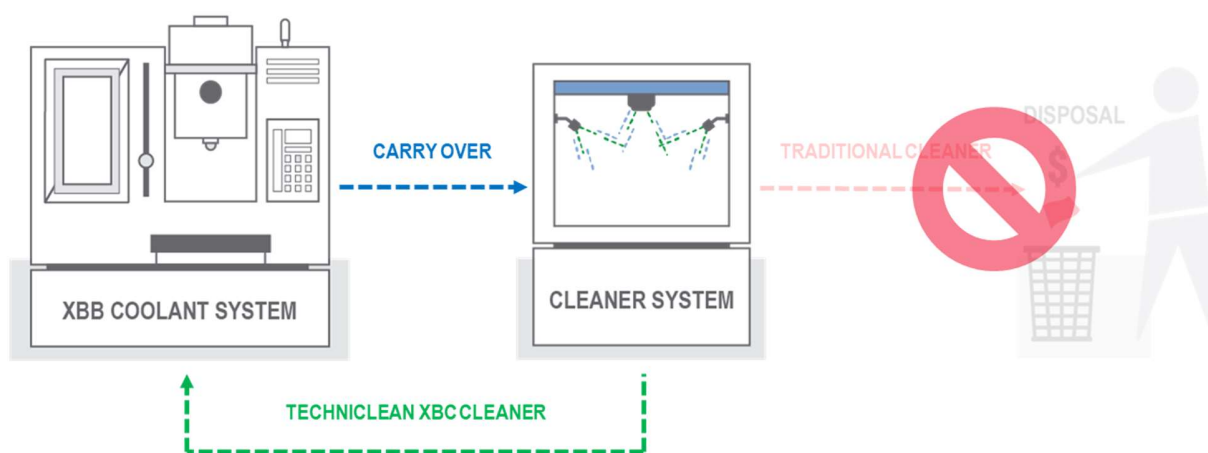
Industrial cleaners are an integral part of the metalworking process

While most modern process cleaners can effectively remove cutting fluids and light machining oils as well as particles, they often fail to separate certain cutting fluid components from the cleaning bath. If the amount of dirt reaches a critical level, the contaminated cleaning fluid must be replaced. This increases both water and cleaning fluid consumption and leads to higher waste disposal costs.

¹ Based on laboratory tests concerning the compatibility, emulsion stability and torque during tapping (lubrication effect), as well as customer case studies. At the end of their lifetime, Techniclean 80 and 90 XBC were recycled in cooling lubricant systems instead of being disposed of. This verifiably reduced water consumption and waste management costs by up to 60 percent.

Castrol Techniclean XBC is different. It does not only provide outstanding demulsifying performance for easy separation of foreign oil to ensure a long service life of the bath², but it is also designed for maximum compatibility with Castrol Alusol XBB and Hysol XBB coolants due to its equivalent “chemical DNA”.

Instead of being disposed of at the end of its cleaning lifespan, the used cleaning fluid can be recycled in the coolant system without performance losses. In this way both water consumption and disposal fees for used cleaning fluids can be reduced or even eliminated altogether.



Therefore, Castrol Techniclean cleaning fluid avoids waste and supports a closed cycle

Furthermore, in laboratory tests performed at Castrol as well as in customer case studies, it was possible to demonstrate a low foaming behaviour² over a wide range of temperatures along with suitability for low temperature and cold applications in modern spray, high pressure and intensive flood washing systems, which can help companies save energy costs.

In addition, Techniclean XBC is formulated without boron and formaldehyde-splitting biocides. In order to meet further local requirements, there are two variants: Techniclean 80 XBC, based on monoethanolamine (MEA) and Techniclean 90 XBC, formulated without MEA.

Techniclean XBC was not only developed in view of the technical requirements for modern process cleaners but also with an eye on the recycling economy: it has a long lifetime and can be recycled. As a result, fewer raw materials are consumed and less waste is generated. It potentially

² Based on Castrol laboratory tests from 2017 and customer tests from 2018.

also saves heating energy, which helps companies to optimise their profile in terms of their overall carbon footprint.

PRODUCT FEATURES		TECHNICLEAN 80 XBC	TECHNICLEAN 90 XBC
TECHNICAL PERFORMANCE	MULTI-METAL APPLICATION	✓	✓
	CORROSION PROTECTION ON CAST STEEL	✓	✓
	HIGH PRESSURE SUITABILITY	✓	✓
	SUITABLE FOR LOW TEMPERATURES	✓	✓
	HARD WATER STABILITY	✓	✓
	RECYCLABLE IN ALUSOL/HYSOL XBB KSS	✓	✓
FORMULATION WITHOUT	BORON	✓	✓
	FORMALDEHYDE-SPLITTING BIOCIDES	✓	✓
	MEA (MONOETHANOLAMINE)	✗	✓

Properties of Castrol Techniclean XBC

Recycling of Castrol Techniclean XBC

The possible recycling option of Castrol Techniclean XBC offers companies a variety of benefits. This is highlighted by a user example. One customer with several cleaning baths disposed of approximately 400 m³ of cleaning solution each year. With Techniclean 90 XBC it was possible to reduce this quantity significantly - in the meantime the company only disposes 150 m³, while an additional 250 m³ is recycled for further use in the cutting fluid emulsion systems.

The customer operates about 150 individually-filled cutting fluid systems for mechanical processing with Castrol Alusol SL 51 XBB. In the past, cleaning the emulsion in several cleaning baths, water, or a low concentrated emulsion was used - and the parts were rinsed in them after processing. The consequences were a strong microbial growth and an unpleasant odour. Accordingly, the baths had to be vacuumed and the contents disposed of once a week. The company disposed of approximately 400 m³ of water or rather cleaner solution each year. By using Castrol Techniclean 90 XBC, **this quantity was reduced to 150 m³ per year.**

The company prepares the remaining volume in the mixture with the cutting fluid emulsion from the chip filter and returns it to the emulsion systems. Five cubic metres of the Techniclean 90 XBC solution (1%) are treated each week and therefore not disposed of. This amounts to approximately **250,000 litres each year** - an enormous saving.

Another positive result: Since the Techniclean 90 XBC solution is returned to the emulsion, unpleasant odours in the coolant systems are a thing of the past. In addition, overall the systems run in a significantly more stable manner. With an underlying disposal price of 100 Euros per 1,000 litres, the use of Techniclean 90 XBC saves the company at least 25,000 Euros each year solely in disposal costs. In a highly competitive market such as the metal processing industry this is a competitive advantage that should not be underestimated.

Conclusion: Castrol Cleaning Fluids supports business success

Castrol Techniclean XBC cleaning fluids increase productivity, reduce operating costs, and enable an improved work environment for employees - all without compromising cleaning performance, service life, and efficiency. Because for the metal processing industry, advanced cleaning technologies are more important today than ever, in order to ensure high levels of component quality. In addition, environmental regulations must be fulfilled and disposal costs must be considered in business decisions - the use of Castrol cleaner agents ensures this and they give companies the security of having chosen the right cleaning fluid solution.

IT'S MORE THAN JUST OIL. IT'S LIQUID ENGINEERING.™

