



THE EXPERTS IN INDUSTRIAL CLEANING

source: Dürr EcoClean GmbH

CASTROL OFFERS YOU A COMPREHENSIVE RANGE OF WORLD-CLASS INDUSTRIAL CLEANERS AND PRODUCT SUPPORT SERVICES THAT WILL HELP YOU TO:

- > **Achieve more reliable cleanliness of finished parts**
- > **Improve Health, Safety and Environmental (HSE) performance**
- > **Boost productivity through reduced scrap rates and waste**
- > **Lower your cleaning costs**

We can offer you these powerful benefits by harnessing the process and applications expertise of our global network of sales, engineering and research specialists. Our ultimate goal is to increase your productivity and help you meet your health, safety and environmental responsibilities.

Once seen as a necessary evil, industrial cleaning has become a crucial element of the value chain within many industrial manufacturing processes. In recent years, cleanliness requirements have increased significantly to guarantee accurate quality, functionality and lifespan of parts and components, and to facilitate optimum surfaces for subsequent treatments, such as heat treatment or coatings.

At Castrol, we focus on product compatibility throughout the metalworking process. As such, we have developed a wide range of industrial cleaners. Just as important, we have knowledge and experience in their application in various industries.

In particular, we can help you achieve better cleanliness and deliver greater cost effectiveness throughout your operations. Simply put, you can trust Castrol to provide the right product for the job, across all your operations.

A CHOICE TO SUIT YOUR NEEDS

In selecting the ideal cleaner for a given process, a number of factors need to be considered, such as:

- Cleaning equipment, e.g. single-stage or multi-stage washer
- Type of application, e.g. spray, dip, ultrasonic, flood wash
- Related parameters such as temperature, pressure, contact time, etc.
- Material to be cleaned – ferrous, aluminium, yellow metals
- Geometry and size of the part
- Type and amount of contamination
- Batch or continuous parts cleaning
- Parts throughput per day
- Drying conditions
- Bath maintenance – oil skimmers, filters, etc.
- Compatibility with subsequent processes, e.g. heat treatment, coating, sealing, welding, etc.
- Required cleanliness level
- Desired corrosion protection

We have created a comprehensive range of user friendly and environmentally friendly industrial cleaners, offering you the choice of:

- > **Hydrocarbon Solvent Cleaners**
- > **Aqueous Process Cleaners**
- > **Maintenance Cleaners**

AQUEOUS PROCESS CLEANERS

Aqueous process cleaning involves the cleaning of components as part of the manufacturing process, and typically involves the removal of metalworking fluids and/or corrosion preventives from metal parts on a continuous production line.

Aqueous cleaners allow flexibility of choice in delivering cleaning performance. The selection depends on the equipment to be used, the substrate to be cleaned and the soil to be removed. Other considerations may include foam characteristics, water hardness in the plant and the corrosion protection required.

Key Benefits

Parts quality

- Superior capacity to remove particles and polar and inorganic soils
- High versatility – allowing flexibility in process design which enables aqueous cleaning processes to deliver superior cleaning for a wider variety of contaminants
- Low foam compatibility with high pressure cleaning equipment

Cleaning cost

- Reduced chemical cost
- Reduced disposal expenses
- Reduced energy consumption through lower operating temperature, shorter cycle time and improved bath life

HSE

- Meets growing environmental regulations – e.g. European Volatile Organic Compounds (VOC) legislation or European Detergent Regulation
- Helps reduce fire risk
- Improves your working environment
- Enhances the health and safety of your workforce



source: Dürr Ecoclean GmbH

Inter-operational Cleaners

These are used for intermediate cleaning operations involving steel, cast iron and non-ferrous metals within the metalworking process. They consist of organic alkaline builders and acids and a biodegradable surfactant package which ensures proper surface wetting, emulsification of oily soils and suspension of particulate soils. Other ingredients may include water softeners, corrosion inhibitors, demulsifiers and biocides.

Application

Inter-operational cleaners effectively remove soluble oils, low viscosity neat cutting or forming oils, low viscosity lubricating oils, swarf and general dirt. They tend to be light-duty cleaners, with an emphasis on giving the treated parts temporary corrosion protection during further processing, handling and short-term storage in dry conditions.

As these cleaners contain very small quantities of inorganic salts or none at all, they leave no visible salt residues but place a thin film of organic corrosion inhibitors on the cleaned part or component.

Typically, inter-operational cleaners are designed for spray, flood wash and ultrasonic applications and are also used in high pressure equipment.

Our range of aqueous process cleaners is sold under the Castrol 'CareClean', 'Flexiclean' and 'Techniclean' names.

Corrosion Preventive Cleaners

These tend to be similar in formulation to inter-operational cleaners but contain a significantly higher level of corrosion inhibitors. They may also be soluble or semi-synthetic emulsion cleaners that are mainly based on mineral oil, emulsifiers and film-forming corrosion inhibitors.

Application

The primary purpose of using corrosion preventive cleaners is to supply a higher degree of corrosion protection where required, i.e. in final wash operations when extended storage time prior to assembly is expected, or if in-plant or even cross-plant transportation is needed.

Synthetic products leave barely perceptible translucent films, offering short-term protection with minimal surface contamination, while emulsion cleaners leave higher performing, ultra thin, oily films on metal surfaces after the evaporation of the water phase.

Emulsion cleaners are specifically designed to combine the benefits of cleaning and superior corrosion protection.

Alkaline Heavy-Duty Cleaners

The composition of alkaline cleaners is adjusted according to their purpose by the combination of alkaline builders, such as alkali hydroxides, carbonates, phosphates, borates and silicates. Beyond that, they can contain surface-active substances and inhibitors that prevent any attack on the component surface.

Application

Alkaline cleaners are widely used within metalworking industries and can clean off both polar and non-polar contaminations.

They are mainly applied wherever extreme contaminations such as heavy-duty oils and fats as well as aged or cracked oils are to be removed, or where high surface cleanliness of the metal surface is required, i.e. prior to galvanizing, coating or enamelling.

QUALITY AND RELIABILITY FROM START TO FINISH



source: Dürr Ecoclean GmbH

THE COMPLETE RANGE OF INDUSTRIAL CLEANING SOLUTIONS



source: Dürr Ecoclean GmbH

HYDROCARBON SOLVENT CLEANERS

The Castrol range of solvent cleaners has been specially formulated with selected hydrocarbons delivering excellent solvency for mineral oils, fats, greases and other soils typically found in manufacturing. The choice of solvent depends on odour, evaporation rate and solvency – and is usually a compromise between performance and health, safety and environmental requirements.

Key Benefits

- Cleaning with hydrocarbon solvents is highly effective and yet economical
- Our solvent cleaners have very low surface tension, allowing the fluid to penetrate into difficult to reach areas
- No waste water is produced and the solvents can be recycled by distillation
- Our range includes low aromatic, low odour solvents with better health and safety properties than traditional aromatic-containing solvents
- We offer solvents with varying flash points and evaporation rates, allowing the evaporation rate to be controlled to comply with volatile emissions regulations
- Energy costs are low as these solvents are normally used at an ambient temperature

Our range of hydrocarbon solvent cleaners is sold under the Castrol 'Techniclean AS' name.

Application

Hydrocarbon solvent cleaners are typically used when contact of the parts with water is not desired. Furthermore, in industrial cleaning, chlorinated solvents can be widely replaced by hydrocarbon solvents. These can be used in different applications – either manually or in automated equipment (single or multi-stage).

The following actions improve the cleaning efficiency in cleaning equipment:

- Movement of the parts (lifting, turning, slewing)
- Ultrasonics
- Flood washing
- Vacuum vapour degreasing

The final cleaning step is crucial for delivering high quality cleanliness. Mechanisms for extending the service life of the cleaning medium play a key role in process-integrated environmental protection. Long service life of the cleaning media can be achieved by effective separation of the contamination, such as:

- Filtration for solids
- Separation for insoluble liquid soils
- Distillation for soluble organic compounds

MAINTENANCE CLEANERS

Maintenance cleaning is usually associated with the general need to keep the work environment clean. The Castrol range of maintenance cleaners include two groups of products:

Our range of maintenance cleaners is sold under the Castrol 'Techniclean FC' and 'Techniclean MTC' names.

Industrial Floor Cleaners

These are liquid alkaline degreasing and cleaning solutions for cleaning industrial floors, containing a highly effective biodegradable surfactant package.

Key Benefits

- Versatile cleaning fluid – ideal for scrubbing floors and general maintenance cleaning
- Fast-drying, non-slip finish prevents stickiness when used in floor scrubbing equipment and manual operations
- Low foam at all temperatures – allowing use of wet vacuum cleaning machines
- Free of strong complexing agents
- Ambient temperature operation saves energy costs

Application

Our industrial floor cleaners effectively remove soils such as oils, greases, emulsions and general workshop grime. These products are suitable for use on concrete floors and for cleaning work benches as well as machines. Our formulations are equally suited for use in brush-type powered cleaning equipment and manual applications.

Machine Tool Cleaners/System Cleaners

These are light- to heavy-duty machine tool cleaners and disinfectants, formulated with effective low foaming, biodegradable surfactants, emulsifiers and biocides.

Key Benefits

- Compatible with common soluble coolants and metal substrates
- Keeps machine tools in a clean and efficient condition
- Cleans a wide range of contaminants from machine tool systems, including fatty build-up in pipelines and floor ducts
- Kills bacteria and fungi
- Emulsifies floating tramp oil
- Avoids downtime – can be added while machines are operating normally
- Low foaming properties
- No further corrosion preventive is required

Application

Our machine tool and system cleaners have been specifically formulated to deal with a wide variety of machine tool contaminants. They are easy to use with minimum disruption to production, because they can be added directly to the coolant system while it is still in operation prior to a scheduled coolant change.

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