

OENOLOGY ENERGIZED BY

LANXESS
Energizing Chemistry

Velcorin® technology is an oenological practice that protects wine against micro-organisms and preserves its natural flavour.

X Velcorin®

VELCORIN® – AN EXCELLENT CHOICE FOR YOUR WINE

Drinking wine encompasses the smell, taste and experience. In brief, wine offers pure enjoyment.

The high expectations of consumers mean that oenologists are always facing new challenges regarding the quality of wine. A key factor is the microbiological stability of the product. The refermentation of wines is a particular problem for oenologists, as micro-organisms are everywhere during the production, storage and filling of the wine. Micro-organisms that can spoil products, such as yeasts, moulds and bacteria do not just affect the quality and particularly the organoleptic characteristics of the wine, but can in certain circumstances pose a health risk to consumers. Global trade, long transport times as well as different types of packaging are some of the other stresses that wine is exposed to. Trends to develop new products with a lower alcohol content and additional flavours or fruit juices are leading to new challenges.

Nowadays, the microbiological stability of wines is predominantly achieved by using SO₂, filtration, the pH value of the wine and the natural alcoholic content. Velcorin® (dimethyldicarbonate/DMDC) provides an additional, effective oenological practice where we can offer the required protection for all alcoholic beverages for which DMDC has been approved.

VELCORIN® – VERSATILE APPLICATIONS FOR OENOLOGISTS

The most important Velcorin® applications include:

- **Quality assurance thanks to protection against refermentation**
- **Optimisation of filtration**
- **Optimisation of SO₂**
- **Excellently effective against typical wine spoilage yeast organisms e.g. *Brettanomyces***
- **Microbial Stabilisation in bulk wine applications**
- **Targeted fermentation stop**
- **Alternative to hot filling process and tunnel pasteurisation**
- **Replacement for potassium sorbate**



UNCOMPROMISING AGAINST MICRO-ORGANISMS

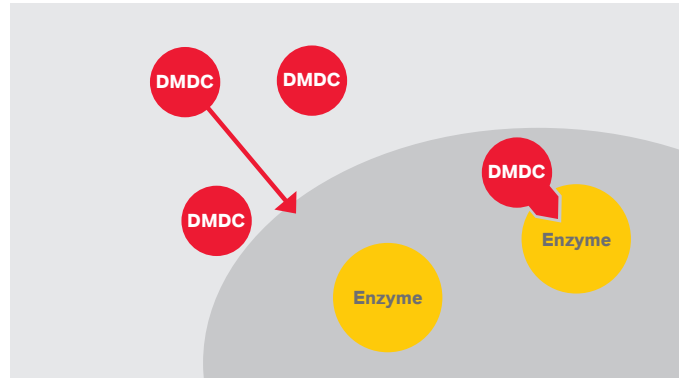
Velcorin® is added during the production of the beverage. Even at low concentrations, Velcorin® is very effective against typical micro-organisms such as yeast, bacteria and moulds.

How does Velcorin® work?

Velcorin® penetrates the cell and deactivates enzymes, causing the micro-organisms to die.

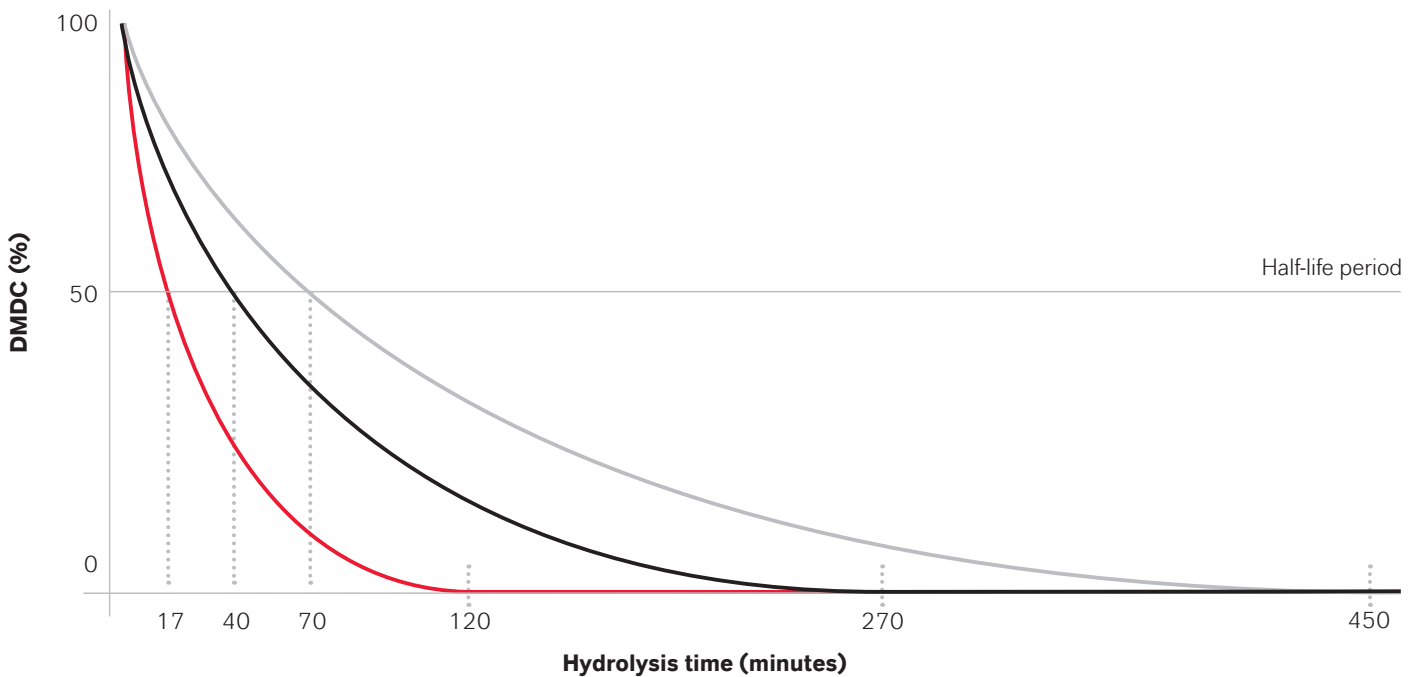
Once added to the wine, Velcorin® rapidly breaks down into negligible amounts of methanol and carbon dioxide, naturally occurring compounds in wine. Consequently, it has no effect on the taste, smell or colour of the beverage.

A simplified illustration of how DMDC works



| What is Velcorin®? | |
|-----------------------|----------------------------|
| Composition | Dimethyldicarbonate (DMDC) |
| DMDC (pot. titration) | at least 99.8% |

Breakdown (hydrolysis) of Velcorin® in beverages



■ 20°C ■ 10°C ■ 4°C

VELCORIN® – RANGE OF APPLICATIONS

- **Wine (white, rosé, red)**
- **Alcohol-free and low-alcohol wine**
- **Fruit wines**
- **Mixed wine beverages**
- **Apple and pear cider**
- **Alcoholic mixed beverages**
- **Alcohol-free soft drinks**

The standard dose of Velcorin® in alcohol-free drinks is 125 mg/l, whereby the max. dose for wine is 200 mg/l. Depending on the approved status, the dose can be up to 250 mg/l in all of the other approved categories.

Exposure data on micro-organisms

Minimum lethal concentrations of Velcorin®; populations of up to 500 cfu/ml

| | Velcorin® mg/l |
|---------------------------------|----------------|
| Micro-organisms | |
| <i>Acetobacter pasteurianus</i> | 80 |
| <i>Botrytis cinerea</i> | 100 |
| <i>Brettanomyces spp.</i> | <50 |
| <i>Lactobacillus brevis</i> | 200 |
| <i>Lactobacillus buchneri</i> | 30 |
| <i>Saccharomyces bailii</i> | 120 |
| <i>Saccharomyces cerevisiae</i> | 30 |
| <i>Saccharomyces uvarum</i> | 20 |

USED AROUND THE WORLD

Velcorin® is a recognised oenological practice that is used in a variety of applications in countries that produce wine. In 2011, the International Organisation for Vines and Wine (OIV) considerably extended the use of DMDC in wine, thus ensuring that oenologists could widely use Velcorin® in vinification facilities.

Prominent bodies, such as the EU Scientific Committee on Food, the FDA in the United States and the JECFA of the WHO, have all confirmed that DMDC is safe for use in beverages. The production of Velcorin® is certified according to ISO 9001:2000 and ISO 14001:2005. Velcorin® is also certified to meet Halal & Kosher requirements.

We are more than happy to offer you expert advice regarding any regulatory matters relating to the use of Velcorin® and will refer back to the renowned advisors in important wine-producing countries.

VELCORIN® – HAS A WORTHWHILE EFFECT

Even small doses of Velcorin® are already highly effective against typical micro-organisms that can spoil products, as well as being cost-effective and simple to use. It can be used for filling into standard packaging such as glass, PET, cases, bag-in-box or pouches, as well as during production, temporary storage or transport in a container. Of course, we also offer you competent application-specific advice and comprehensive services.

VELCORIN® DT TOUCH – DOSING TECHNOLOGY

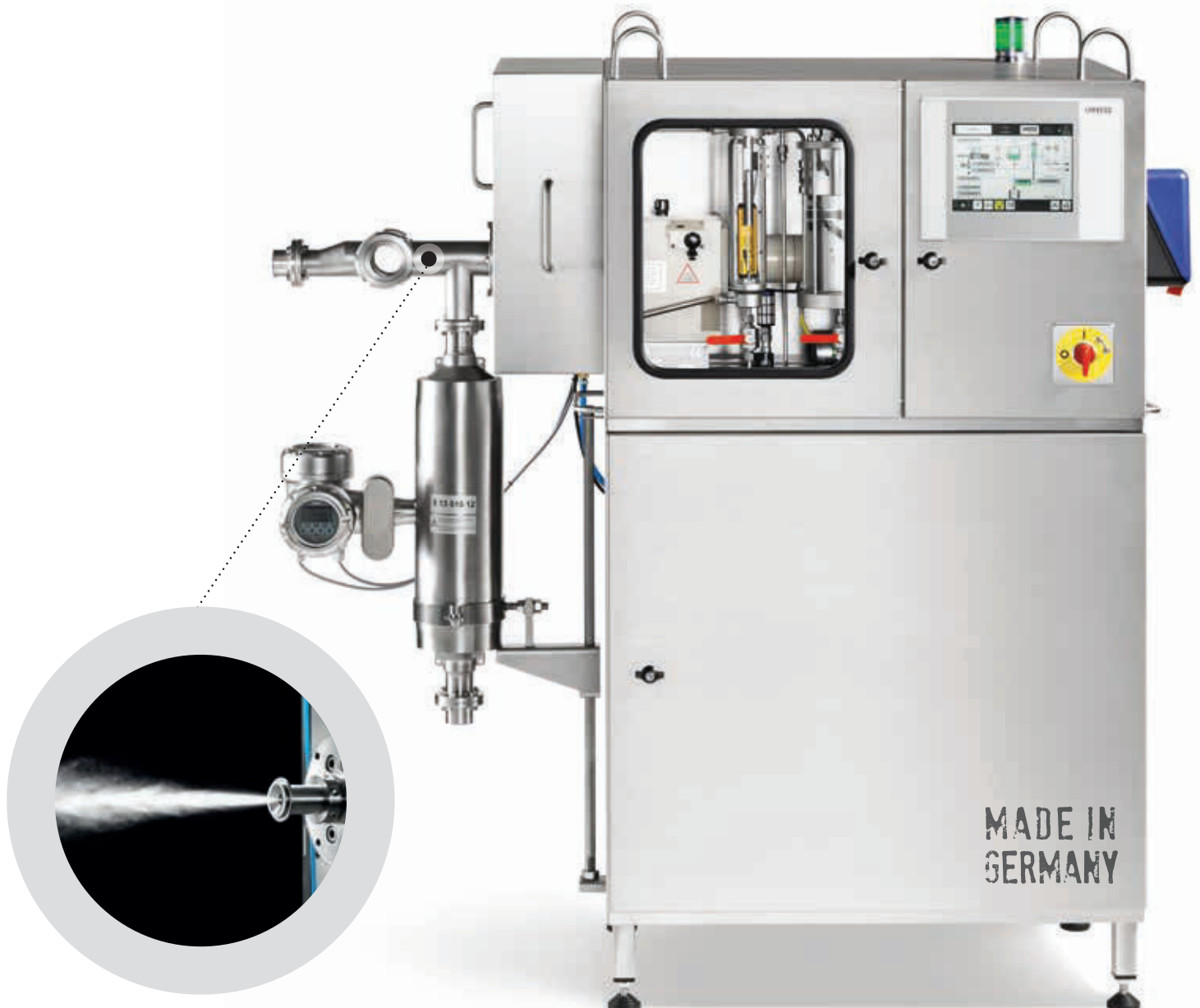
With Velcorin® we not only offer you a highly effective solution for the cold sterilisation of your beverage, but also provide you with a complete range of services with our state-of-the-art Velcorin® dosing units.

Features of Velcorin® DT Touch:

- High-quality and robust metering pump with monitorable dosing
- Temperature-controlled, stainless steel upper and lower cabinet containing 25 kg or 3 kg bottles
- Control and visualisation via touch panel PC
- Excellent dispersion of Velcorin®
- Beverage flow rate measured by the mass measuring device
- Automatic ventilation on the Velcorin® side
- Easy and safe operation

Control and visualisation of dosing process

- Included in the electronic control system of the filling line
- Automatic display of messages, warnings and maintenance intervals
- System visualisation in a dynamic flow chart
- Clear overview of the target and actual values
- Data storage for the last 24 months
- Data transfer via USB
- Various operator levels/access rights





The Velcorin® dosing unit is installed in new or existing filling lines, and can be used for tank-to-tank treatment or upstream of the container filling system. Only minor modifications to the filling line are required for this purpose.

Sizes

| Model range | Min. beverage flow rate l/h | Max. beverage flow rate l/h | Max. Metering rate ml/hl | Connections in DN |
|-------------|-----------------------------|-----------------------------|--------------------------|-------------------|
| DT 3 Touch | 600 | 3,600 | 20 | 40 |
| DT 6 Touch | 1,200 | 7,200 | 20 | 40 |
| DT 13 Touch | 2,400 | 14,400 | 20 | 50 |
| DT 18 Touch | 3,600 | 21,600 | 20 | 50 |
| DT 30 Touch | 6,000 | 36,000 | 20 | 50 |
| DT 50 Touch | 8,400 | 50,400 | 20 | 80 |
| DT 75 Touch | 13,200 | 79,200 | 20 | 80 |

* Maximum permissible dosing rate depends on the product and country registration.

ALWAYS ON HAND

You too can benefit from a reliable and competent partner – LANXESS. Wherever you are and whenever you need us, our specialists are always on hand to provide detailed advice and comprehensive support for everything relating to the use of Velcorin®:

- Advice on the use of Velcorin® and Velcorin® DT Touch
- Support in laboratory and production testing
- Employee training
- Comprehensive registration management

What can we do for you? We look forward to each new challenge – and our next conversation with you!

www.velcorin.com





The application, use and handling of our products and the products produced by your company on the basis of our application-specific advice are beyond our control and are therefore entirely your own responsibility. Our products are sold in compliance with the appropriate current version of our general sales and delivery terms. According to EU guidelines, Velcorin® is a hazardous substance with the following hazard characteristics: a health hazard (when ingested), poisonous (when inhaled), caustic.

All of the brands are protected brands of the LANXESS Group, unless specified otherwise.

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