The manner in which you use and the purpose to which you put and utilize our products, technical assistance and information (whether verbal, written or by way of production evaluations), including any suggested formulations and recommendations are beyond our control. Therefore, it is imperative that you test our products, technical assistance and information to determine to your own satisfaction whether they are suitable for your intended uses and applications. This application-specific analysis must at least include testing to determine suitability from a technical as well as health, safety, and environmental standpoint. Such testing has not necessarily been done by us. Unless we otherwise agree in writing, all products are sold strictly pursuant to the terms of our standard conditions of sale. All information and technical assistance is given without warranty or guarantee and is subject to change without notice. It is expressly understood and agreed that you assume and hereby expressly release us from all liability, in tort, contract or otherwise, incurred in connection with the use of our products, technical assistance and information. Any statement or recommendation not contained herein is unauthorized and shall not bind us. Nothing herein shall be construed as a recommendation to use any product in conflict with patents covering any material or its use. No license is implied or in fact granted under the claims of any patent.

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Note: The information contained in this publication is current as of June, 2009. Please contact LANXESS Corporation to determine if this publication has been revised.
The future is clear: consumers are now expecting great-tasting beverages with an ever-increasing range of flavors. With VELCORIN® Technology, you can join the growing team of successful manufacturers, who understand and deliver great taste without compromising the microbiological stability of the beverage.

As a manufacturer in the beverage industry, you are constantly faced with ever-increasing challenges. On one hand, you must continuously develop new variations of beverages (e.g., with additional nutritional benefits), while on the other hand, you must also address the challenge of fulfilling beverage production standards and the protection of your products against spoilage.

Microorganisms, such as yeasts, molds and bacteria may spoil your beverages, or worse render them unfit for consumption.

With our VELCORIN® product, you are able to achieve a stable beverage while preserving its true blend and sensory profile. Even at low levels, VELCORIN® (Dimethyl dicarbonate/DMDC) is extremely effective against typical beverage-spoilage microorganisms and is simple to use.

Consistent dedication to true flavor.
Microorganisms are present throughout the beverage filling process: in the air, in the equipment, in the caps, seals and in the beverages themselves. As a manufacturer, you can choose between a range of different methods to stabilize your beverages – VELCORIN® a microbial control agent is already successfully established as one of the leading technologies in this field.

**Your benefits from VELCORIN® Technology:**
- uncompromising quality combined with extreme efficacy
- no effect on the taste of the beverage
- breaks down into natural constituents
- cost-effective
- compatible with all types of packaging
- Halal & Kosher certified, OU certified (USA)
- comprehensive application-relevant advisory service

**VELCORIN® Technology – a wide range of uses**

- Carbonated or non-carbonated juice beverages
- Isotonic sports beverages
- Iced teas
- Flavored water
- Wines
VELCORIN® a microbial control agent is added immediately before filling the beverage. Even at low concentrations, VELCORIN® product is effective against typical spoilage microorganisms such as yeasts and a wide range of bacteria and molds.

**Uncompromising against microorganisms.**

A simplified illustration of how DMDC works

DMDC penetrates the cell and deactivates enzymes, leading to the destruction of the microorganisms.

After addition to the beverage, DMDC rapidly breaks down into negligible amounts of methanol and carbon dioxide, which are naturally occurring compounds in many beverages such as fruit and vegetable juices and wines. Consequently, it has no effects on the taste, aroma or color of the beverage.

**Break down (hydrolysis) of DMDC® in beverages**

<table>
<thead>
<tr>
<th>Filling temperature</th>
<th>Half life</th>
<th>Total hydrolysis time</th>
</tr>
</thead>
<tbody>
<tr>
<td>68°F</td>
<td>17</td>
<td>120</td>
</tr>
<tr>
<td>50°F</td>
<td>40</td>
<td>270</td>
</tr>
<tr>
<td>39°F</td>
<td>70</td>
<td>450</td>
</tr>
</tbody>
</table>
Uncompromising against microorganisms.

With our VELCORIN® product, we offer not only an extremely effective solution to stabilize your beverages, but also, in combination with state-of-the-art VELCORIN® DT Dosing Systems, a truly complete range of services.

VELCORIN® DT – your benefits at a glance:
- easy and quick integration into existing filling systems
- low initial investment
- simple and safe handling
- versatile utilization of existing filling lines

VELCORIN® (Dimethyl dicarbonate/DMDC) is approved for a wide range of beverages around the world. Beverage manufacturers are responsible for ensuring that they meet all relevant legal requirements, including compliance for import/export activities. 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 the use of Dimethyl dicarbonate in the food industry. The production of DMDC is certified according to ISO 9001:2000 and ISO 14001:2005.

In use around the world.

The use of VELCORIN® (Dimethyl dicarbonate/DMDC) is approved for a wide range of beverages around the world. Beverage manufacturers are responsible for ensuring that they meet all relevant legal requirements, including compliance for import/export activities. 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 the use of Dimethyl dicarbonate in the food industry. The production of DMDC is certified according to ISO 9001:2000 and ISO 14001:2005.
You, too, can benefit from a reliable and competent partner – LANXESS. Wherever you are and whenever you need us, our specialists are always at hand to provide detailed advice and comprehensive support for everything relevant to the use of VELCORIN® (Dimethyldicarbonate/DMDC) including:

• advice on product use
• 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 meeting with you!
The manner in which you use our products, and the purpose to which you put and utilize our products, technical assistance and information (whether verbal, written or by way of production evaluations), including any suggested formulations and recommendations are beyond our control. Therefore, it is imperative that you test our products, technical assistance and information to determine to your own satisfaction whether they are suitable for your intended uses and applications. This application-specific analysis must at least include testing to determine suitability from a technical as well as health, safety, and environmental standpoint. Such testing has not necessarily been done by us. Unless we otherwise agree in writing, all products are sold strictly pursuant to the terms of our standard conditions of sale. All information and technical assistance is given without warranty or guarantee and is subject to change without notice. It is expressly understood and agreed that you assume and hereby expressly release us from all liability, in tort, contract or otherwise, incurred in connection with the use of our products, technical assistance, and information. Any statement or recommendation not contained herein is unauthorized and shall not bind us. Nothing herein shall be construed as a recommendation to use any product in conflict with patents covering any material or its use. No license is implied or in fact granted under the claims of any patent.

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