

# DMDC

DIMETHYL DICARBONATE



*Protect your beverages and wines against microorganisms  
No effects on flavor*

 | **DMDC**

[www.dmdc242.com](http://www.dmdc242.com)

## WHAT IS DMDC

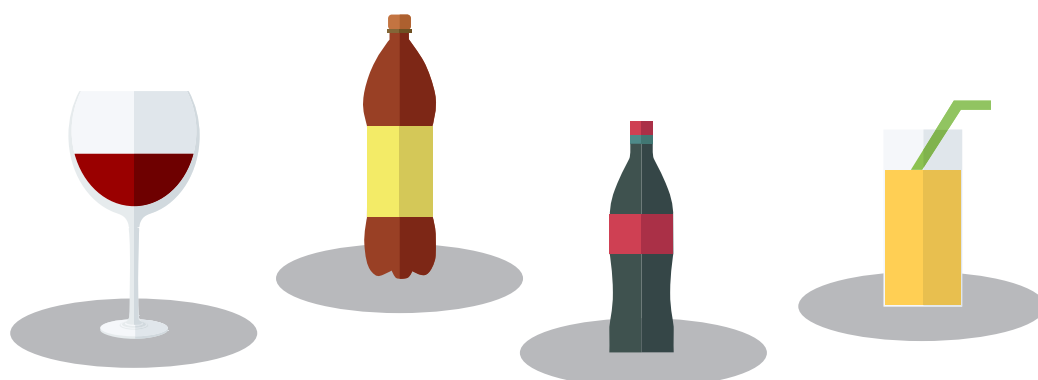
DMDC (Dimethyl dicarbonate) is a microbial control agent having been successfully applied in beverage and wine industry for more than 25 years.

### Physical Characteristics

Chemical formula	$C_4H_6O_5$
Molar Mass	134.09 g·mol <sup>-1</sup>
Appearance and Odour	Colourless liquid, slightly pungent aroma
Density	1.25 g/m <sup>3</sup> [20°C / 68°F]
Vapour Pressure	0.7 mbar [20°C / 68°F]
Solubility in water	Extremely low, slowly reaction
Melting Point	~ 17°C / 63°F
Boiling Point	~ 172°C / 342°F
Assay	≥99.8%
Dimethyl carbonate	≤0.2%
Lead	≤2mg/kg
package	4L / 20 L
C.A.S. Number	4525-33-1
HS Code	2920 90 10

## WHY DMDC

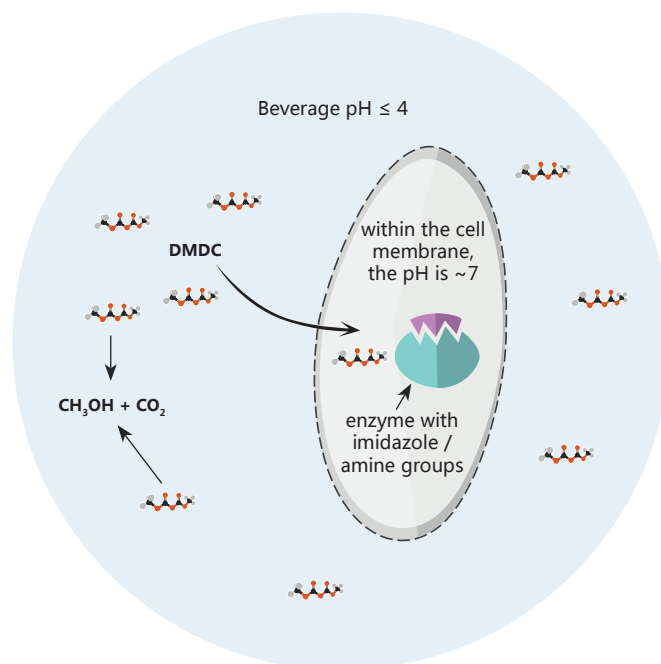
- Highly effective at low dosages against a broad spectrum of microorganisms as yeasts, bacteria and moulds, etc
- Non-persistent additive and minimal negative effect on beverage/wine taste, colour odour and mouthfeel
- Breaks down completely into small amounts of methanol and carbon dioxide, which are both natural constituents of many beverages such as fruit and vegetable juices and wines
- DMDC remains effective for several hours, depending on hydrolysis rate under certain temperature, thereby it helps to eliminate contamination introduced during the bottling process (bottles, closures and filling equipment)
- DMDC is compatible with all types of packaging material such as glass, plastics and metal
- DMDC is authorised as a food additive for a wide range of beverages and wines in more than 90 countries. EFSA (European Food Safety Authority), FDA in the USA, the JECFA of the WHO and many other prominent bodies worldwide have all confirmed the safety of DMDC in the beverage industry. DMDC is also certified to meet Halal & Kosher requirements.\*



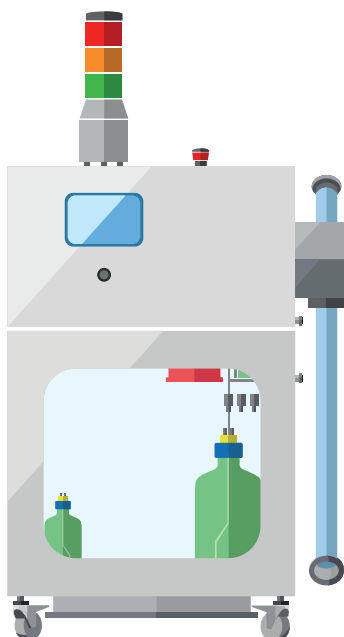
## HOW DOES DMDC WORK

DMDC has been commonly used as an antimicrobial agent for a broad spectrum of microorganisms. The primary target microorganisms of DMDC are yeasts, including *Saccharomyces*, *Zygosaccharomyces*, *Rhodotorula*, *Candida*, *Pichia*, *Torulopsis*, *Torula*, *Endomyces*, *Kloeckera* and *Hansenula*. DMDC is also bactericidal to a number of species including *Acetobacter pasteurianus*, *Escherichia coli*, *Pseudomonas aeruginosa*, *Staphylococcus aureus*, several *Lactobacillus* species and *Pediococcus cerevisiae*. DMDC has also been shown to be bactericidal against *Escherichia coli* O157:H7.\*

The antimicrobial effect of DMDC results from the deactivation of microbial enzymes, mainly through reaction with protein imidazole and amine groups, leading to the destruction of the microorganisms. (figure A) The remaining unreacted DMDC breaks down rapidly into methanol and carbon dioxide. The DMDC activity is based on the hydrolysis rate. Hydrolysis occurs when DMDC reacts with water and the rate is dependent on the temperature of the beverage or wine. It takes about four hours at 10°C (50°F) or two hours at 20°C (68°F) for DMDC completely breaking down.



	DMDC Breakdown time	Half life
20°C/68°F	120 min	17 min
10°C/50°F	270 min	40 min
4°C/39.2°F	450 min	70 min



## DMDC DOSING MACHINE

### General Conditions

- Power supply: 230 +/- 10% 50 Hz
- Max. Power: 1500W
- Plant Air : No need
- Single type of atomix, which covers the range 3-150 hl/h at DMDC concentrations up to 30ml/hl (300ppm)
- Customized control panel in multi-languages
- Connection adapter for 4L or 20L DMDC bottles

### Additional features

- Full automatic, online measurement of the drinks filling rate, calculate automatically the corresponding DMDC dosing quantity and flow rate, according to the required concentrations by law (input by operator)
- PCS and dosing pump only from international industrial leaders, highest reliability
- Heat tracing of the pipelines and a temperature control in the DMDC chamber (20 – 30°C)
- Equipped with emergency stop function
- Operation manual and on-site commissioning included
- Warranty, machine fittings and maintenance services included

Dosing system	min.range drink L x h <sup>-1</sup>	max. range drink L x h <sup>-1</sup>	max. dosage ml x hl <sup>-1</sup>	fittings DN
Universal Dosing Machine**	600	3,600	20	25
	1,200	7,200	20	40
	2,400	14,400	20	50
	3,600	21,600	20	65
	6,000	36,000	20	80
	8,400	50,400	20	100
	13,200	79,200	20	125

\* Reference: Scientific opinion on the re-evaluation of dimethyl dicarbonate (DMDC, E 242) as a food additive *EFSA Journal* 2015; 13(12): 4319

\*\*The machine is universally applicable since the software can be adjusted according to your preference and the size for the connection is variable.



## ABOUT DUESSEL H LIMITED

Duessel H Ltd., headquartered in Hong Kong, is the global distribution partner for the DMDC producers from China. Duessel H Ltd. is also represented at Duesseldorf, Germany and operated by a multinational team, consisting of experts in chemistry, engineering, machine and marketing. The company has set up a warehousing and logistics center close to Rotterdam in Europe to secure the product supply and sales services in Europe and northern Africa regions. The logistics and service center in America is planned and will be realized with first tier logistics operators. The company is committed to providing the beverage and wine industries a very reliable DMDC protection against microorganisms that could spoil their drinks or wines without negative effects on their natural flavour.

### Contact

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**Health & Safety Information:** Literature is available, which provides information concerning the health and safety: precautions must be observed when handling DMDC. Before working with this product, please read and get familiar with the available information on its hazards, proper use, and handling. Information is available in material safety data sheet or product labels. Please consult your product supply agent or contact Duessel H Limited directly.