

# DecalMATE

Automatic fixation and decalcification system for bone tissues



**MILESTONE**  
HELPING  
PATIENTS

# Need good results? Start with good preparation.

**DecalMATE** is a new tool to enable histotechs to “tailor” their fixation/decalcification process to the specific characteristics of their bone tissue specimens.

For the first, time automatic protocols for fixation/decalcification of bone tissues are available to the modern laboratory for improved diagnostic quality and consistency of results plus faster turn-around time. The operator is guided by the intuitive, user-friendly software on the touch screen control terminal. The unit consists of a resistance heated, temperature controlled process cavity, made of high chemical resistance techno polymers, with a built-in magnetic stirring device for temperature and concentration homogeneity.

## EASY OPERATION

After placing the rack in the cavity and pressing start, the unit will automatically:

- Transfer fixative from the tank to the process cavity
- Bring fixative to the selected temperature for the preset time
- Drain, after time expires, the fixative solution back to the tank
- Transfer decalcifying solution to the cavity and heat it for the selected temperature and time
- Drain back, after completion, the solution to the tank

Two flushing /rinsing steps are automatically carried out between the two phases.

An alarm buzzer advises operator of completion of run.

## DecalMATE: simple, automatic, safe.

Which rack for which specimens?



*Standard - 30 cassettes  
For specimens 30x25x5 mm*

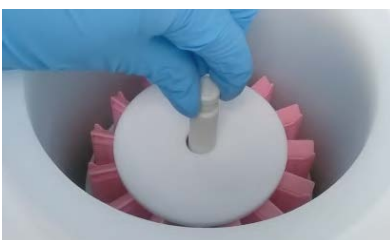


*Mega - 16 cassettes  
For specimens 30x25x10 mm*



*Super mega - 6 cassettes  
For specimens 70x50x15 mm*

### 1 Position the cassettes in the rack



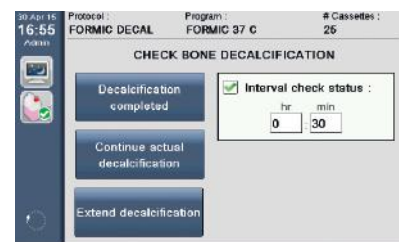
2

*Position the rack in the cavity  
and close the cover*



3

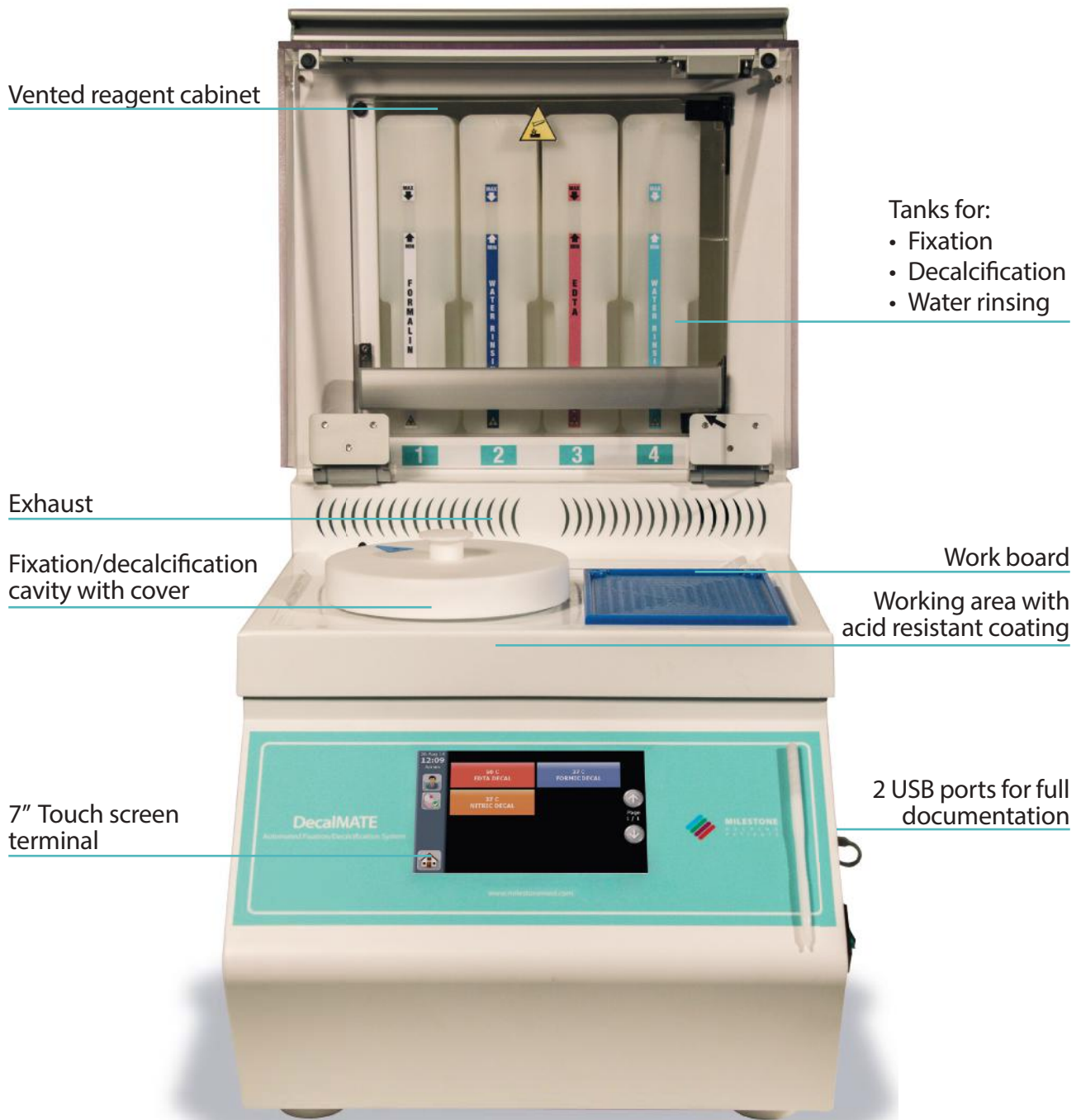
*Select your protocol  
and press START*



4

*After the decalcification,  
check the status of the bone*

# Optimize, standardize, automate and document your decalcification protocols



OPTIMIZED MOLECULAR STUDIES  
AUTOMATIC PROCESS FLOW  
RAPID TURNAROUND TIME  
HIGH PROCESS FLEXIBILITY  
FULL DOCUMENTATION

# This is decalcification the way it should be

All major parameters influencing these all important pre-analytical steps can be controlled, optimized, automated and documented.

## ▶ TEMPERATURE

Fixation and decalcification temperature can be set between 20-55°C for optimization of the process.

## ▶ MAGNETIC STIRRING (AGITATION)

The calcium ions that have been removed can saturate the solution around the specimen. Continuous stirring assures a consistent flow of fresh decalcifier onto the bone surface, accelerating the decalcification process:



## ▶ REAGENTS

All product surfaces involved in the process circuits are compatible with the following reagents:

Fixatives	Decalcification solutions
Finefix	EDTA 20% at max 50°C
Formalin	Formic acid 20% at max 50°C
	Acetic acid 20% at max 50°C
	Hydrochloric acid 10% at max 37°C
	Nitric acid 10% at max 37°C
	Trichloroacetic acid 10% at max 37°C

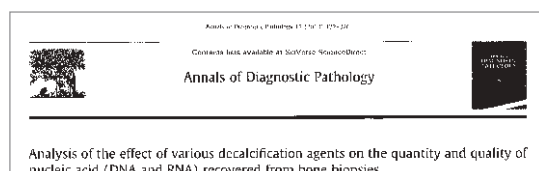
## ▶ SIZE OF SPECIMENS

Three different types of racks are available to fit user's requirements.

## Decalcification of bone marrow

### OPTIMIZING DECALCIFICATION FOR MOLECULAR STUDIES

Recent reports have systematically studied the effects of a spectrum of decalcifier agents on the quantities and quality of RNA and DNA recovered from bone biopsies.



Both reports concluded that there was a significant decrease in both RNA and DNA yield and integrity with strong acids (hydrochloric, nitric) versus 12,5-14% EDTA and formic acid. They concluded also that the preferred decalcifier agents to optimize quantity and quality of recovery of nucleic acids from bone biopsies specimens are those that contain as sole agent or in combination either 14% EDTA or formic acid.



# MoL-DECALCIFIER

## SPEEDING UP DECALCIFICATION WITH EDTA

For faster decalcification time, the process with EDTA is best carried out at a pH value of 7.2-7.4. Milestone has developed an innovative, pure EDTA solution, based on a stoichiometric mixture of bibasic and tribasic EDTA to reach this pH value without the addition of an acid/base buffer. The combination of increased temperature, stirring and the MoL-DECALCIFIER, during the decalcification phase allows fixation, decalcification and processing of bone marrows within 48 hours.



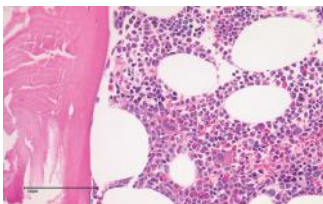
Fixation	Decalcification	Temperature	Total Time
<b>Formalin 10%</b>	<b>MoL-DECALCIFIER</b>	°C	<b>Fixation + Decalcification</b>
1h 30'	16h 30'	37	18h
1h	4h	50	5h
<b>Formalin 10%</b>	<b>Formic 10%</b>	°C	<b>Fixation + Decalcification</b>
1h 30'	1h 30'	37	3h
1h	1h	50	2h

DecalMATE protocols for bone marrows (Ø 1.8mm)

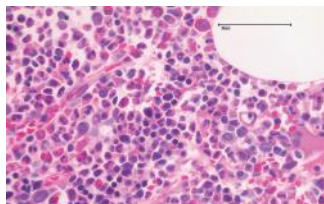
## Optimized Molecular Results

A presentation\* during the "First Symposium on Pre-analytic of Pathological Specimens - Berlin March 2013" reported the first results on H&E, IHC, FISH and molecular using the Milestone decalcifying solution MoL-DECALCIFIER on bone marrow trephine biopsies.

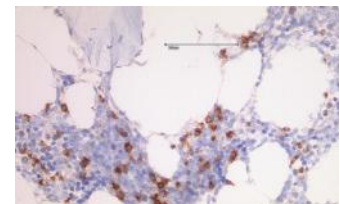
H&E and IHC CD 138



H&E MoL-DECALCIFIER

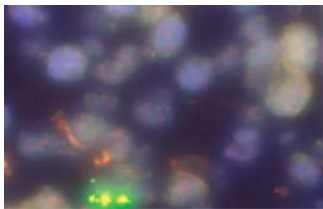


H&E MoL-DECALCIFIER

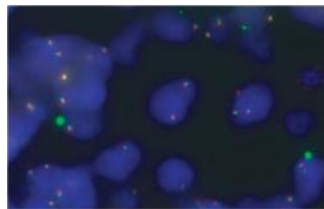


CD138 MoL-DECALCIFIER

FISH (BCL6 Break Apart Probe, Abbott)



Conventional

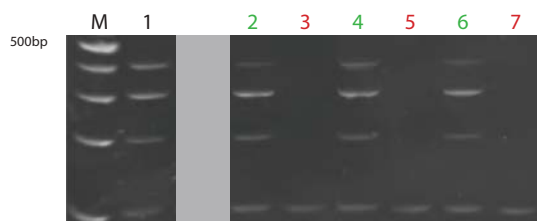


MoL-DECALCIFIER

Quality control-PCR

Control multiplex-PCR: amplification of different-sized genomic segments (100, 200, 300, 400 bp) harboring single-copy genes (Biomed-2).

Bone marrow work-up, Ioannis Anagnostopoulos Institute for Pathology Charité – Campus Mitte, Berlin Germany.



M: size standard.  
1: Tonsil conventional  
2, 4, 6: MoL-DECALCIFIER  
3, 5, 7: Conventional

# DecalMATE unique features

## HIGH FLEXIBILITY

- Possibility to use different decalcification reagents:
  - Strong mineral acids
  - Weak organic acids
  - Chelating agents
- Possibility to use different racks.
- Possibility to use different fixation/decalcification temperatures.

## SAFE

- Closed fixation/decalcification cavity with safety switches.
- Safety switches: shield open, cavity open.

## FAST

- 24 hours turn around time for bone marrow.
- Up to 30 standard cassettes can be fixed/decalcified simultaneously.

## FULL DOCUMENTATION

- USB port enables both updating of software and downloading of event logs.

## Technical specifications

- Ventilated tanks and cavity area
- 7" touch screen terminal. 2 USB ports
- Dimensions: *h* 74 cm/29" - *w* 42 cm/16,5" (with tanks door open 51cm/20") - *d* 94 cm/37"
- Weight: 60 Kg/132 lbs (when empty) - 70 Kg/154 lbs (with reagents loaded)
- Power supply: 230V~ 50/60Hz or 115V~ 60Hz (700W)



**MILESTONE**



HELPING  
PATIENTS

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**UNI EN ISO 9001: 2008 / UNI EN ISO 13485:2012 CERTIFIED**

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