



MILESTONE
H E L P I N G
P A T I E N T S

HISTOLOGY GOES **GREEN**

Milestone products for a safer,
environmental-friendly histology laboratory

10



Our challenge

Milestone is striving to improve the laboratory work environment by developing safer and greener reagents and accessories.

Through to our line of products important steps in the histological specimens preparation, such as fixation, decalcification and processing, can be dramatically shortened in time by improving the instrumentation power-saving features.

Great attention is also given to the development of reagents, with the goal to eliminate operators exposure to toxic reagents such as xylene and formaldehyde, for a safer laboratory environment.

FIXATION

FineFIX

The formalin substitute

The ideal fixative should present a low level of toxicity, produce optimal H&E, IHC and histochemical staining and allow recovery of DNA, RNA, and protein for molecular analysis.

FineFIX is a patented formalin-free, water-based concentrate. When diluted with ethanol, its formulation of low toxicity additives overcomes the drawbacks commonly associated with the use of pure ethanol or ethanol based fixatives, e.g., significant tissue shrinkage, vacuolization and pyknotic nuclei. FineFIX also provides optimal preservation of tissue antigens, nuclear and cytoplasmic morphology and reduced lysis of red blood cells with preservation of the cytoplasmic membranes.

FineFIX working solution is prepared by mixing 1 part of FineFIX concentrated to 3 parts of ethanol (98%)

The ethanol concentration in the working solution of FineFIX is approximately 70%. This concentration was found to produce good histology and to allow optimal recovery of DNA/RNA and proteins, sufficient for several downstream molecular analyses ^{(1) (2)}.



THE BENEFITS OF FINEFIX IN THE GROSSING ROOM

- Simultaneous specimen fixation, dehydration and fat extraction while immersed in FineFIX.
- Macro firming of specimens allows pathologists to easily palpate, dissect and cut thinner representative blocks.
- Elimination of the slimy feel and consistency of fatty specimens for a rapid, easy clean up.
- More “real-life” color compared to “grayish” appearance of formalin fixed specimens.
- Easy detection of lymph nodes: an easy gray-white contrast following FineFIX fixation.

⁽¹⁾ Gillespie JW, Best CJM, et al. Evaluation of non-formalin tissue for fixation for molecular profiling studies. Am J Pathol 2002; 160: 449-457.

⁽²⁾ A Novel fixative improves opportunities of nucleic acids and proteomic analysis in human archive's tissues. (Giorgio Stanta et al. - Diagn. Mol. Pathol. 2006 June 15(2): 115-23.

FormSAFE

High safety formalin prefilled biopsies container

TODAY'S REALITY

In December 2013 the EU-REACH (Registration, Evaluation, Authorization and Restriction of Chemicals) adopted a decision to reclassify formaldehyde as a Category 1B carcinogen and Category 2 mutagen under the EU CLP (Classification, Labeling and Packaging) Regulation.

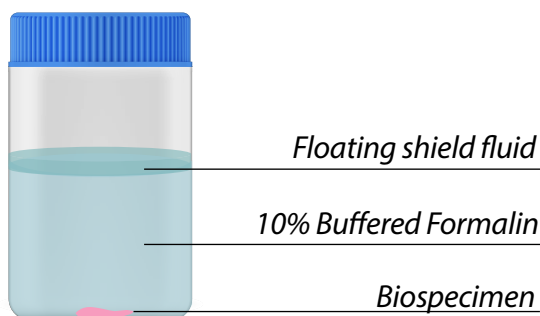
As a Category 1 carcinogen, formaldehyde use will be regulated by the restrictive Carcinogens Directive in EU workplaces from January 1st 2016. This will mandate the replacement of formaldehyde with less dangerous alternatives and, when that is not possible, restricting exposure using engineering and other controls.

Mandatory prevention and protection obligations are among others.



THE CHALLENGE

FormSAFE provides an excellent alternative to traditional prefilled containers when personnel are concerned with formalin exposure during collection, transport and storage. A second stratified fluid component floats above the formalin phase and acts as a protective floating shield which prevents fixative fumes from escaping the container. This concept of a multi-layered liquids container allows safe handling both to the endoscopist at sampling and to the histologist when preparing the cassette. The endoscopist can easily detach the specimen from the tweezer by immersing them in the liquid without being exposed to formalin vapours. The histologist can open the container, pickup the specimen without being exposed the fumes.



Box of 50 containers

TECHNICAL SPECIFICATIONS

- 60 ml container
- 30 ml 10% neutral buffered formalin
- Floating shield fluid

FormSAFE package 1: available in 21 boxes of 50 containers each.

FormSAFE package 2: available in 70 boxes of 50 containers each.

JFC

The high performance xylene-free processing solution

The JFC Solution is an innovative patented solution composed by a mixture of ethanol, isopropanol and a long chain hydrocarbon. Under the influence of microwaves this solution becomes highly effective in the extraction of water and lipids from biological tissue, in a single step, without the need for further dehydration or clearing.

The miscibility of the three components of the JFC Solution lets perform in a single step dehydration and clearing, thus representing a significant advantage over the conventional processing method.

The action of the mixture can be explained by the polarity of the molecules. In general for an optimal extraction, the polarity of the solvent should be similar to that of impurity you want to remove. In histoprocessing such impurities are generally water and lipids.

The isopropanol, a polar molecule, contributes to dehydration and also improves the extraction of non polar fatty.

Ethanol, also a polar molecule, primarily serves to dehydrate.

The action of both alcohols will be highly efficient under the stimulation of microwaves.

The third component of the JFC Solution, an organic solvent, is chemically inert, and not polar. Although it has relatively low affinity with fats in normal conditions, its clearing activity is highly reinforced by the action of the microwaves on ethanol and isopropanol.



JFC: available in 5L tank.

MileGREEN

The Xylene substitute

MileGREEN is a solvent, consisting of iso-paraffins and replaces xylene both at the clearing and mounting process. Moreover it can be used for cleaning purposes for paraffin contaminated items, for example in Milestone HistosMATE module.

When heated this solution becomes highly effective in the extraction lipids from biological tissue.

MileGREEN is an almost odorless, non-carcinogenic solvent and has the properties to solve fat and paraffin.

MileGREEN formulation of low toxicity overcomes the drawbacks commonly associated with the xylene, a hazardous product for the human nervous system. MileGREEN also provides optimal structural preservation of fat cells structure, nuclear and cytoplasmic morphology.



MileGREEN: available in 5L tank.

Vacuum Bags

Vacuum bags for formalin-free surgery suites

Standup vacuum bags for both TissueSAFE and SealSAFE vacuum units. An innovative barrier against infective agents, undesired smells and toxic formalin fumes!

A fraction of the space necessary compared to stored standard containers, Milestone bags make storage and the tissues transport cost effective and safer.

- Dual thermal sealing, ensures reliability in sealing in of fixative.
- Vacuum sealing or auto dispensing of preset formalin ratios dispensing.
- Re-sealable up to four times, economic reuse for additional specimen access and archival.
- Made of dioxine-free plastic, Milestone bags make their disposal environmental friendly.
- Eliminates risks of formalin handling, with Milestone vacuum systems and vacuum bags.



FEATURES

1. Double layered PA/PE, 135 microns in thickness guarantees greater mechanical flexibility and resistance to perforation. Available in five different dimensions, suitable for all kind of specimens.
2. Three sealing areas and cutting lines marked for multiple reuse.
3. Sealable document pouch provides security for patient information.
4. Automatically printed adhesive label contains: ID, date, time, specimen and fixative weight.
5. Self standing expanding base.



SYNERGY KIT

Kits for processing plus embedding in one step

The joint effort of Milestone and Klinipath created Synergy, a revolutionary method (patent n. EP 2 439 510 A1) to automatically embed tissues as part of the processing protocols. This method is applied to Milestone's rapid tissue processors Pathos DELTA and LOGOS.

Through dedicated rack and consumables, the same tissue processor unit can simultaneously achieve processing and automatic embedding. All kind of tissues and dimensions can be processed and embedded with this method.



DELTA Synergy rack



LOGOS Synergy rack

SYNERGY CONSUMABLES PACKAGES

- 1360 Molds (standard, biopsies or Needle biopsies)
- 1400 Pads



Consumable package



Molds and Pads

MoL-DECALCIFIER

EDTA based decalcifying solution (no acid/bases buffers)

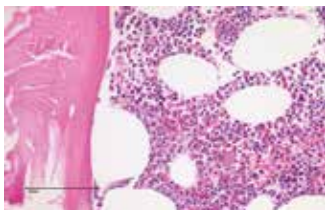
For faster decalcification time, the process with EDTA is best carried out at a pH value of 7.2-7.4. Milestone has developed an innovative, pure EDTA solution, based on a stoichiometric mixture of bibasic or tribasic EDTA to reach this pH value without the addition of an acid/base buffer. The combination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

OPTIMIZED MOLECULAR RESULTS

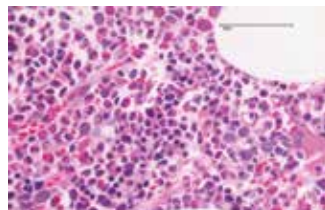
A presentation* during the "First Symposium on Pre-analytic of Pathological Specimens - Berlin March 2013" reported the first results on H&E, IHC, FISH and molecular using the Milestone decalcifying solution MoL-DECALCIFIER on bone marrow trephine biopsies.



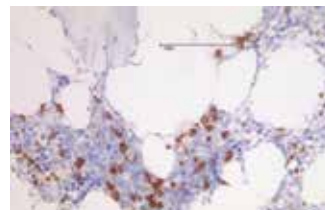
► H&E and IHC CD 138



H&E MoL-DECALCIFIER

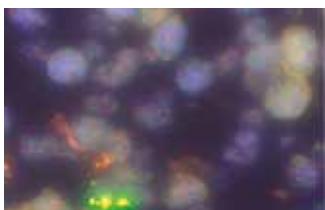


H&E MoL-DECALCIFIER

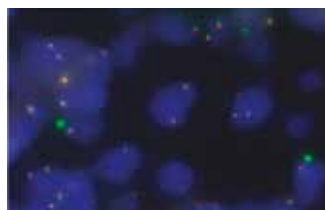


CD138 MoL-DECALCIFIER

► FISH (BCL6 Break Apart Probe, Abbott)



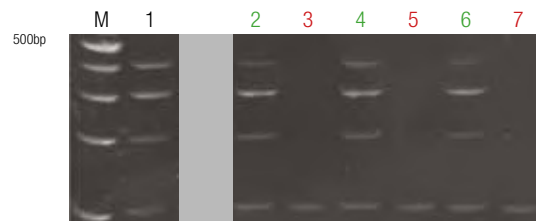
Conventional



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).



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

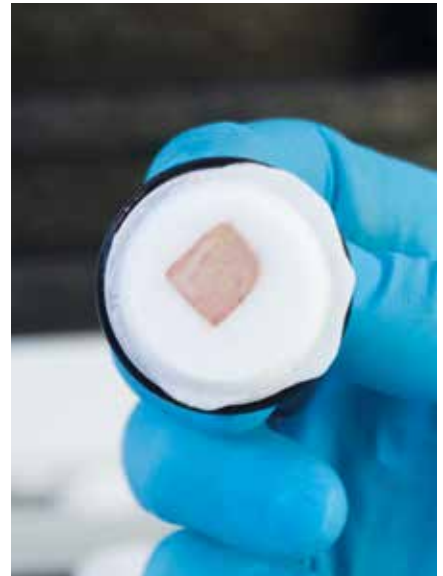
* Bone marrow work-up, Ioannis Anagnostopoulos Institute for Pathology Charité – Campus Mitte, Berlin Germany.

MCC

Optimized cryoembedding compound

THE PERFECT CRYOEMBEDDING COMPOSITION FOR THE PRESTOCHILL SYSTEM

- The MCC is a proprietary formulation of glycols and resins specifically developed for optimal support during cryotomy of dissected tissues down to -40°C.
- The MCC is water soluble and doesn't leave any residue on slides eliminating non specific background staining. The MCC compound will not dull microtome knives.



MCC Compound: available in 125 ml squeeze bottles, box of 12 bottles.

MILESTONE



HELPING
PATIENTS

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