

# Formalin System

Safety for Users



*Optimal protection  
against dangerous  
Formalin fumes!*

- Enclosed system for optimal protection
- Flexible Formalin dosing



 SARSTEDT

Introduction

Whenever a tumorous disease is suspected, a tissue analysis is required and typically conducted by means of a biopsy. For many years, Formalin has been used for fixation to protect tissue specimens against desiccation, decomposition and putrefaction after collection. However, the preservative property of the 4% Formaldehyde solution has a toxic effect on humans. Apart from severe skin irritations that may be caused by direct contact, the substance can be carcinogenic. Consequently, Formaldehyde has increasingly become a focal point of criticism over the past years.



Problem

In today's laboratory, sample containers pre-filled with Formalin are routinely used for tissue fixation. With this method, the container is opened prior to collection so that the specimen can be directly transferred into the Formalin solution. As Formaldehyde is a highly volatile substance, the dangerous fumes escape into the environment immediately upon opening the container. Users regularly conducting biopsies are therefore exposed to the risk of developing a carcinogenic disease. Based on these findings, the International Agency for Research on Cancer (IARC) of the World Health Organisation (WHO) classified Formaldehyde as "carcinogenic for human beings" (hazardous substance in terms of "CMR" = cancerogenic, mutagenic, toxic to reproduction) in 2004.

Recently, Formaldehyde has also been added to the list of potentially carcinogenic substances (NIOSH) in the USA, concluding that Formaldehyde can cause cancer of the respiratory tract.

In order to minimise health hazards, vents are currently required to reduce the spreading of toxic fumes. However, these devices involve extremely high costs and are not typically available in all hospital areas or at registered doctors' practices. Consequently, adequate occupational protection is very often not ensured for users.







### Enclosed Formalin System

The new Sarstedt Formalin System is an enclosed unit enabling contamination-free fixation of tissue specimens so that the user does not come into contact with Formalin. Contrary to the standard procedure, the tissue specimen is placed into a neutral, non-prepared S-Monovette® after collection. Subsequently, the S-Monovette® is connected to the Sarstedt Formalin System and filled with Formalin.

Fixation of the sample is now completed. Apart from contamination-free fixation, the S-Monovette® provides the additional benefit of ensuring individual dosing of the Formalin volume in line with demand. For this purpose, pull the piston rod downwards immediately after opening the S-Monovette® until the required volume has been collected. Adjust in the filling volume to the size of the specimen saves costs accruing for Formalin disposal.



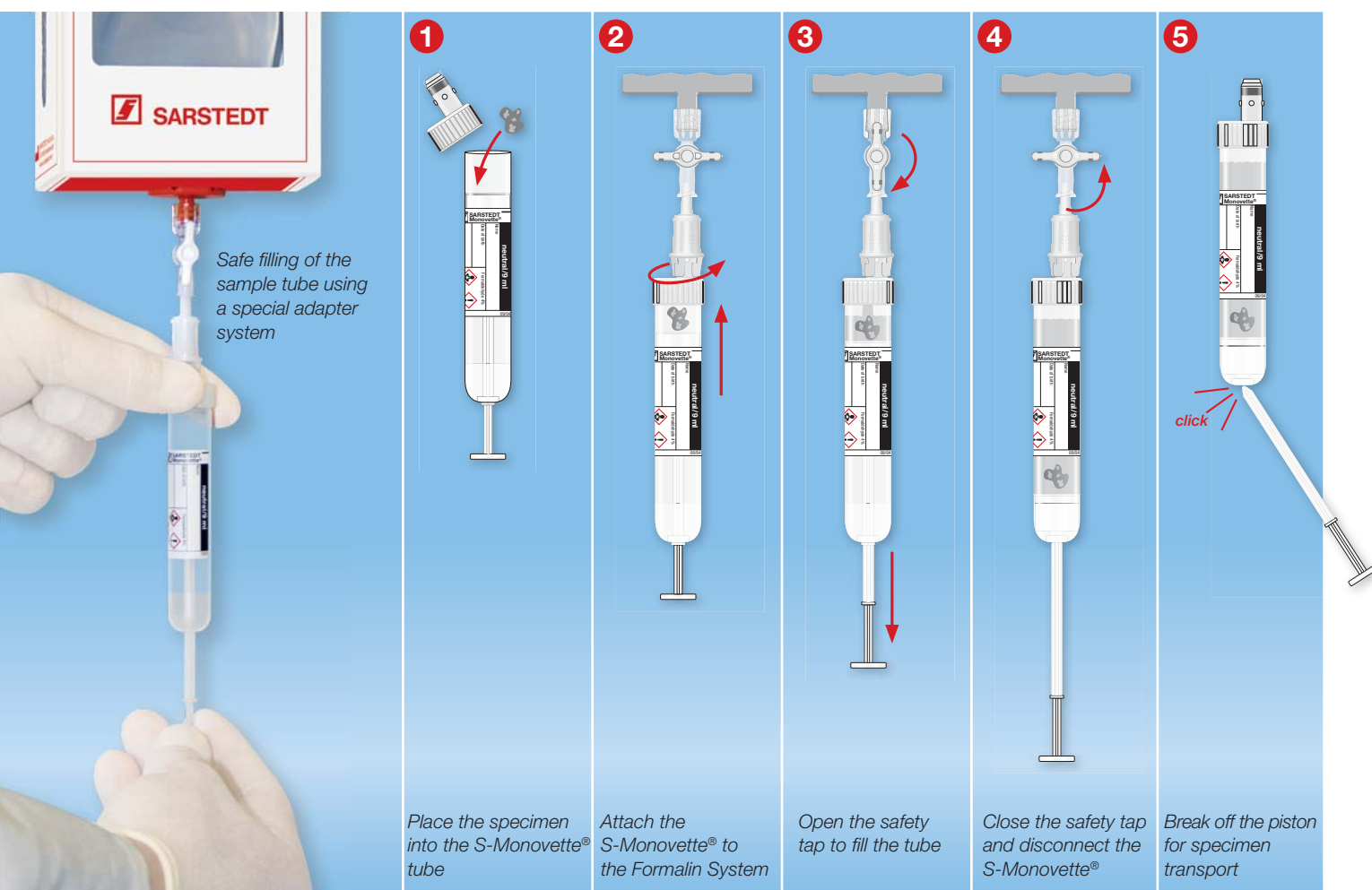
Safe filling of the sample tube using a special adapter system



Sample tubes for secure tissue fixation



User Guide



Ordering Information

Order No.	Description	Sales Unit
51.1703	Formalin System with 450 ml Formaldehyde solution (4%)	6 pcs.
51.1703.009	Formalin Set 9 ml consisting of Formalin System and 100 S Monovettes 9 ml	1 pc.
51.1703.025	Formalin Set 25 ml consisting of Formalin System and 50 S Monovettes 25 ml	1 pc.
09.1704.001	S-Monovette® 9 ml, 92 x 16 mm, 50 pcs. / bag	500 pcs.
09.1704.021	S-Monovette® 9 ml, 92 x 16 mm, sterile, individually wrapped, 100 pcs. / inner case	500 pcs.
09.1705.001	S Monovette® 25 ml, 97 x 25 mm, 50 pcs. / bag	250 pcs.
95.1706	Wall holder for Formalin System	1 pc.

Summary

In view of the new findings about Formaldehyde, fixation of tissue specimens increasingly focuses on user protection, especially considering that venting system installation is not always possible or too costly. Consequently, the working conditions for the fixation of tissue specimens remain unchanged. The new Sarstedt Formalin System provides a cost-effective and highly secure alternative. User contact with the Formalin is prevented and health hazards are minimised. The choice of a 9 ml or 25 ml S Monovette® option as well as the individual Formalin volume enables flexible Formalin dosing.

“With the Formalin System, Rigshospitalet is able to save a lot of money at workstations that do not necessarily require the installation of a venting device, an investment that might otherwise involve amounts in a range of tens of millions (Danish kroner) for Rigshospitalet.”

(Abstract from the overall evaluation of the Rigshospitalet in Denmark)



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