

AQR: Chemicals Used in Testing

Introduction

Evidence examinations in the laboratory may involve the use of chemicals to characterize properties of or observe the reactions with a substance whose identity may not be known.

The individual technical procedures manuals contain specific information not addressed in this document.

Definitions

The following definitions are used by the laboratory.

- *Reagent*¹ - A substance used in a chemical reaction to detect, measure, examine, or produce other substances.
- *Solvent*¹ - A substance in which another substance is dissolved, forming a solution.
- *Stock reagent* - A bulk amount of reagent intended to be used by multiple analysts over an extended period of time.
- *Working reagent* - An aliquot of reagent usually intended for limited use, either by a limited number of analysts or for a short-duration.

Note: a reagent or solvent may have multiple constituents.

Reagent preparation log

Reagent preparation logs are kept in the individual laboratory sections. The log must include, at a minimum:

5.1.3.1

- reagent name
 - laboratory lot number
 - manufacturer's lot number(s) for ingredient(s)
 - preparation date
 - test date
 - test result for positive and negative controls – test result must include observed reaction, if applicable; “pass/fail,” “+/-,” or “OK” are not acceptable entries
 - Note: See individual section manuals on how the results of controls are recorded and maintained.
 - analyst who prepared the reagent
 - analyst who tested the reagent
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¹ American Heritage Dictionary, online version

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Single-use reagents

Some reagents are made fresh and are intended for use during a single occasion. These reagents are verified by the use of positive and negative controls and are either consumed or discarded after that specific occasion.

No permanent record of these reagents will be logged other than in the examination records. It is recommended that containers routinely used for this purpose be labeled with the reagent name and NFPA label.

Mixed solvent preparation log

Logs recording the preparation of mixed solvents, such as those used for extractions, must include, at a minimum:

- manufacturer's lot numbers
 - preparation date (lot #)
 - analyst who prepared mixture
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Stock reagent labeling

5.1.3.1

The following information is recorded on the stock reagent container:

- reagent name
 - laboratory lot number
 - date prepared
 - initials of preparer
 - as NFPA(National Fire Protection Association) label
 - expiration date
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Working reagent labeling

5.1.3.1

The following information is recorded on any working reagent container

- reagent name
 - lot number of the stock reagent container
 - as NFPA(National Fire Protection Association) label
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Transfer containers

Labels are not required for portable containers into which reagents are transferred from labeled containers and which are intended only for the immediate use by the staff member who performs the transfer.

It is recommended that containers that are routinely used for transfer of the same type of reagent be labeled with the reagent name and NFPA safety label.

Pure solvents

Solvent containers are initialed and marked with the date received. Manufacturers' labeling is generally adequate if all labels are intact.

Small amounts of pure solvents for use at work stations must be marked with the following information:

- chemical name
 - NFPA(National Fire Protection Association) label.
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Manufactured chemicals

Manufactured chemical products used in the laboratory that do not meet the definition of "reagent" or "pure solvents" must be labeled with the minimum following information:

5.1.3.1

- product name or chemical name
- either original manufacturer's safety label or an NFPA (National Fire Protection Association) label.

Products in their original packaging or container normally fulfill these requirements. Materials transferred from their original containers, such as chemicals or bleach solutions, must also be labeled.

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Quality testing

Quality testing of reagents is performed prior to use or during the analysis of casework. The reagents will be tested using appropriate standards or controls to ensure reagent reliability as specified in the technical procedures.

5.1.1

5.1.3

5.1.3.1

Reagents that do not perform as expected will be either retested or discarded.

EXCEPTION: Refer to *CH: Reagents* in the *Chemistry Manual* for reagent testing requirements for controlled substance analysis.

Expiration date

Refer to the individual technical manuals for information regarding expiration dates.

Records

Preparation records will be retained for five years, after which they may be discarded.
