1.0 Purpose

This procedure describes ow reagents used in the laboratory are checked for reliability.

2.0 Discussion

Reagents prepared in the laboratory are used to aid in the qualitative and quantitative identification of a substance. The procedures for the preparation and use of reagents are located in discipline specific manuals.

3.0 Definitions

3.1 Reagent: A substance used because of its known chemical or biological activity

3.2 Primary standard: a reference standard purchased from a manufacturer that is traceable

3.3 Secondary standard: a reference standard prepared or confirmed in the laboratory that is standardized against a primary standard.

3.4 QC: Quality control

4.0 Procedures

4.1 Chemicals and solvents used in qualitative reagents are of at least ACS reagent grade.

4.2 Preferred solvents used to dissolve samples or standards are high quality, low residue solvents (e.g., HPLC grade, OMNISOLV, OPTIMA).

4.3 Deionized (DI) or ultrapure water is used for reagent preparation.

4.4 Drug reagents (e.g. color tests) prepared in the laboratory are checked for reliability against a quality control standard. The preparation and QC check are recorded in the Drug Reagent Preparation Log, QF202.1.1

4.5 Alcohol reagents (secondary standards) are standardized against known alcohol quality control standards (primary standards).

4.6 Reagents used for forensic drug analysis must produce a positive result for its quality control standard at the time of preparation.

4.6.1 If the reagent does not test positive, it will be discarded and a new reagent will be prepared.

4.6.2 The new reagent must give a positive result for its quality control standard.

4.6.3 If this process needs to be repeated more than once, the preparer of the reagent should investigate why it is failing and determine the appropriate course of action.

4.7 The quality control standard (e.g. check compound) is selected based on the known response of the reagent to the quality control standard. The most commonly used reagents and check compounds are found in Appendix A.

4.8 Primary or secondary standards may be used for the QC Check.

4.9 Alcohol reagents are monitored each time they are analyzed on the gas chromatograph for accurate retention time.

4.10 Drug reagents are verified every three months during the shelf life of the reagent. These checks are recorded on the Drug Reagent QC Check Log, QF202.1.2.

4.11 If unique reagents other than the commonly used ones listed in Appendix A are used, it is the individual analyst's responsibility to document the preparation and QC check of the reagent.

5.0 Health and Safety

Personnel should follow the health and safety precautions found in the individual reagent preparation SOPs and in the MSDS for reagent components and quality control standards

6.0 Records Management

The Quality Manager is responsible to ensure the proper storage, backup and retention of all laboratory records.

6.1 Reagent QC Check Logs

7.0 References

7.1 ASCLD/LAB-*International*: Supplemental Requirements for the Accreditation of Forensic Science Testing Laboratories, Section 5.1.3
7.2 Quality Manual, Section 2.1
7.3 Drug Reagent Preparation Log, QF202.1.1
7.4 Drug Reagent QA Check Log, QF202.1.2

8.0 Appendices

A. Common Reagents and Quality Control Standards (Example)

9.0 Revision Table

Revision #	Effective date	Revised by	Description of Revisions
Original Issue	10/01/2012	B. Pridgen	
#1	10/31/2012	B. Pridgen	Added "and quantitative" to 2.0
#2	12/17/2014	B. Pridgen	Removed wording in 1.0 and corrected grammar in 4.3

Appendix A
Common Reagents and Quality Control Standards (Example)

REAGENT	CHECK COMPOUND
Duquenois-Levine	Marijuana
Marquis	Heroin
Sodium Nitroprusside	Methamphetamine
Cobalt Thiocyanate	Cocaine

Authorization

This Standard Operating Procedure, Revision Issue #2, has been approved and authorized by:

Bethany P. Pridgen, MFS Forensic Lab Manager	Date
Ralph M. Evangelous Chief of Police	Date