

2020 CDOT Laboratory Manual of Test Procedures

Revised 2024

Introduction

The purpose of the Laboratory Manual of Test Procedures (LMTP) is to provide an official guide to CDOT personnel, consultants, and contractors for the uniform testing on CDOT projects for tests that are not normally performed by project personnel. It is not the intent to publish a complete summary of the testing methods and procedures. **Referenced AASHTO or ASTM test procedures are available through CDOT's internal website as a Materials / Geotechnical Resource.** This resource is not available to non-CDOT personnel.

The manual is published in dual units using the Standard English units and the International System of Units (SI Modernized Metric).

The reproduction cycle for this manual will be approximately five years. **It is available as a hard copy and an electronic document available in its entirety on both the internal and external CDOT website listed below. Within this cycle revisions of an existing CP-L or the creation of a new CP-L will be posted on an annual basis within the first week of April if possible. The effective date of a revised CP-L and its associated Index will be on the page's header.** When a new production run is required and there have been changes to CP-Ls the manual will be designated as (With 20XX Revisions) written directly under the reproduction cycle date on the Cover Page, as necessary until another reproduction cycle is required. It is the LMTP owner's responsibility to ensure that this manual is current based on the web postings of all implemented changes.

We encourage efforts to develop better, more accurate, or faster methods of testing. Many of the Colorado Procedures for Laboratories are the result of suggestions from CDOT personnel, consultants, and the construction and paving industry. **However, testing on a construction project must comply with the test procedures specified in the Contract.**

Before new procedures can be utilized, the procedure must be reviewed and approved by the Materials Advisory Committee (MAC) and the FHWA. After review and approval of a new test procedure (CP-L) the procedure will be included in this manual and specified in future construction contracts. In addition, the procedure used must be the same as that specified in the project specifications. If this rule is not followed, the acceptance or rejection action cannot be supported and may result in legal rulings against the Department in cases of litigation.

The 2020 (With 2021 Revisions) CDOT Laboratory Manual of Test Procedures has been updated with a new chapter "Electronic Documentation" with instructions to meet the recommendations for updating manuals to comply with Procedural Directive 21.1 "Requirements for the Retention of Records for Specified Design, Construction, Engineering, and Specialty Groups (Paper and Electronic) eff. June 20, 2019 and Procedural Directive 508.1 "Requirements for the Use of the Professional engineer's Seal" eff. May 21, 2019

If any questions arise concerning this Laboratory Manual of Test Procedures, telephone the Documentation Unit of the Central Laboratory at 303-398-6566 or submit either the *CP-L Comment Form* or the *Comments and/ Corrections Form* on the following pages.

A centralized location for all CDOT Materials related documents and publications is located at:

<https://www.codot.gov/business/designsupport/materials-and-geotechnical>

General correspondence (letters and envelopes), large packages, bulk mail samples of materials, and nuclear gauges should be addressed to or delivered to:

Attn: (Individual's Name), CDOT, 4670 North Holly Street, Unit A, Denver, CO 80216-6408

If you have any questions concerning this manual please contact:
edward.trujillo@state.co.us (303) 398-6566.

2020 CDOT Laboratory Manual of Test Procedures Dedication

LMTP Documents: A special thank you is extended to the members and participants of the MAC Meetings and the associated task forces who are constantly striving to improve testing methodology and CDOT specifications so that the roads in Colorado are progressively built better and are safer for the motoring public.

SUMMARY of Listed Revisions, Additions, and Deletions

Changes of significance within a particular CP-L will contain a "- 21", for example, at the end of the title to coincide with the fiscal year of the revision. Changes to specific text from the previous version will have a solid **RED** side-bar in either the left or right applicable margin. The current revisions, additions and Deletions are highlighted in **RED**.

Changes from the 2012 and 2020 LMTP (Only the CP-L number will be referenced, not the Sections &/or Subsections):

Chemical Properties

CP-L 2103-21 Sections 1.2, 2.12, Method B (Colorimeter), Method C, 5, 5.1, 5.2,5.3, 5.4, 5.5, 5.6, 5.7, 5.8, 6, 6.1, 6.2

CP-L 2104-21 Sections 1.2, 4.13, Method B (Titration), Method C 5, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8, 6,6.1, 6.2

Bituminous

CP-L 2202-15

CP-L 2203-13

CP-L 2210-24 Section 5.1

CP-L 2211-15

CP-L 2212-15

CP-L 2213-19 Section 4.4, New CP-L 2213 form.

CP-L 2214-15

CP-L 2215-15

Soils

CP-L 3101-16 Deleted 01-01-2016

CP-L 3102-13 Deleted Complete Chapter

CP-L 3103-19 Section 10.6.1

CP-L 3104-15

CP-L 3105-13

CP-L 3106-13

Geology

CP-L 3201-21 (Complete re-write of the CP-L)

CP-L 3210-05 Forms examples

Concrete

CP-L 4101-19 Title procedures.

CP-L 4102-13

CP-L 4203-21 Section 10.3

Physical Properties (Aggregate)

CP-L 4201-16 Deleted Replaced with ASTM C 1260

CP-L 4202-16 Deleted Replaced with ASTM C 1567

CP-L 4209-21 (Complete re-write of the CP-L)

CP-L 4211-15

CP-L 4215-15

CP-L 4216-10

Physical Properties (Concrete)

CP-L 4301-18 New Chapter

CP-L 4302-18 New Chapter

Flexible Pavement

CP-L 5100-15

CP-L 5101-15

CP-L 5106-21 Section 5.2

CP-L 5109-16

CP-L 5110-15

CP-L 5111-15

CP-L 5112-20-24 Section 5.3. **Section 4.1, 5.3, 6.1.2, 6.1.4, 6.2.1.1, 6.2.1.2, 9.1.**

CP-L 5114-20 Section 6.2.1.2

CP-L 5115-22 Section 11.1.3

CP-L 5116-15

CP-L 5117-15

CP-L 5120-20-24 Section 8.9, Appendix. **Section 8.9, 9.3.1.1,**

CP-L 5140-15

CP-L 5145-15

CP-L 5150-15

Nuclear

CP-L 5301-20 Section 5.1, New Leak test envelope.

CP-L 5302-15

CP-L 5303-14

CP-L 5304-16 Deleted 03-10-2016

CP-L 5305-15

CP-L 5306-20 Section 4.7.3, New label.

Electronic Documentation-21 New Chapter**Appendix-21**

Any errors that may still exist within this manual are solely the oversight of the Editor.

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