

CALIFORNIA DEPARTMENT OF TRANSPORTATION LIME PRODUCER QUALIFICATION PROGRAM

1/26/11



This Lime Producer Qualification Program specifies requirements and procedures to ensure that lime meets the requirements in section 24 "Lime Stabilized Soil" and section 39-1.02E, treating aggregate in hot mix asphalt (HMA) with lime in the Standard Specifications.

Lime used on Caltrans projects must be supplied by a Caltrans Approved Lime Producer.

REFERENCE DOCUMENTS

Caltrans' Standard Specifications:

- Section 24, "Lime Stabilized Soil"
- Section 39, "Hot Mix Asphalt"

Caltrans' Standard Special Provisions:

- SSP 24-010, "Lime Stabilized Soil"
- SSP 39-400, "Hot Mix Asphalt Aggregate Lime Treatment – Slurry Method"
- SSP 39-450, "Hot Mix Asphalt Aggregate Lime Treatment – Dry Lime Method"

DEFINITIONS

- Quicklime is used in lime stabilized soil and is made from high-calcium or dolomitic sources. It must comply with ASTM C977 and the properties in Table 1.
- High calcium hydrated lime is used to reduce water susceptibility in hot mix asphalt (HMA). It must comply with ASTM C1097 and the properties in Table 2.
- Producer: A manufacturer where final production or modification of the lime takes place. In the case where a company may own more than one production or manufacture site each individual site will be considered a producer.
- A listing of approved producers is posted and maintained on the Department's Pre-Qualified Products Lists at: http://www.dot.ca.gov/hq/esc/approved_products_list/

APPLICATION TO BE A PRODUCER OF LIME

The producer must submit the following items to Caltrans Transportation Laboratory, Attention: Lime Qualification, 5900 Folsom Boulevard, Sacramento, CA, 95819-4612, email – Prequalified_Materials@dot.ca.gov (Attention Lime Qualification):

Letter formalizing the request

- Identify the management contact for the producer (with address, phone, and email information)
- Identify the quality control contact for the producer (with address, phone, and email information)
- Information about lime plant including address, source of lime, and brief production history. Identify storage facilities and number and location of kilns (including capacity).
- Information about the producer’s quality control program. Identify the process that will be used if test results do not demonstrate compliance with the specifications.

MSDS for lime product.

One year of quality control test results.

Lime samples: Sample lime from production line or storage facility for initial testing in the same manner that you sample for quality control.

- Split lime into 3 samples of at least 1 pound each – One for testing by producer’s quality control laboratory. The other two send to the Transportation Laboratory, one for testing and the other a retain for dispute resolution.
- Submit samples in airtight containers marked with lime type, producer name, sample date, and unique sample number on the container.
- Test results for the tests listed in Table 1 or 2 on the producer’s portion of the split initial sample from the Quality Control Laboratory

The Department will test the split sample to verify the producer’s data. If lime quality and test reproducibility are satisfactory the producer will be added to the QPL.

TABLE 1. QUICKLIME REQUIREMENTS

Specification	Test	Requirement
Chemical Analysis for calcium (CaO) and magnesium oxide (MgO)	ASTM C 25 ^a	High calcium: CaO > 90% Dolomitic: CaO > 55% CaO + MgO > 90%
Loss on ignition	ASTM C 25	≤ 7 %
Carbon dioxide	TGA method ^b	< 5 %
Free and chemically combined moisture	TGA method ^c	< 2 %
Slaking rate, Heat rise in 8 minutes	ASTM C 110	≥ 30° C

Notes:

- a ASTM C 1301 or ASTM C 1271 may be used for Quality Control, but ASTM C25, will be the referee method.
- b Thermogravimetric analyzer(TGA)- weight loss between 600 °C and 1000 °C
- c Thermogravimetric analyzer- weight loss from ambient to 600 °C

TABLE 2. HIGH CALCIUM HYDRATED LIME REQUIREMENTS

Specification	Test	Requirement
Calcium Oxide ^{a, b}	ASTM C 25	≥ 90.0 %
Unhydrated Calcium and Magnesium Oxides		≤ 5.0 %
Carbon Dioxide	TGA method ^c	≤ 5.0 %
Free Moisture of Dry Hydrates	TGA method ^d	≤ 2.0 %
Retained on No. 30 Sieve Retained on No. 200 Sieve	ASTM C 110	≤ 3.0 % ≤ 30 %

Notes:

- a LOI free basis
- b ASTM C 1301 or ASTM C 1271 may be used for Quality Control, but ASTM C25 will be the referee method.
- c Thermogravimetric analyzer- weight loss from 600 °C to 1000 °C
- d Thermogravimetric analyzer- weight loss from ambient to 160 °C

MAINTAINING STATUS AS APPROVED PRODUCER OF LIME

To maintain the status as an Approved Producer of Lime, the producer must conform to the following requirements:

- Annually, when notified by the Department –
 - Letter outlining any changes in production, quality control or quality control testing that may have occurred during the previous year – if applicable. Include new information about lime plant and/or the producer’s quality control program.
 - Two 1-pound samples of lime – One for verification testing by the Department and one retained by the Department for dispute resolution if required. Producer tests a third sample from this split.
 - Test results for the tests listed in Table 1 or 2 on the producer’s portion of the split sample.

PROJECT SAMPLES

Samples received at the Transportation Laboratory from projects will be tested for compliance to the project specifications. Composite samples or averaging test results from storage units containing products from different sources is not permitted.

When the engineer is notified of a non-compliance, the producer will be notified also.

It is the producer’s responsibility to resolve any issues of non-compliance with the Transportation Laboratory and the Engineer.

Failure to comply with project specifications more than 3 times in any 12 month period will result in having the producer removed from the list of Caltrans Approved Lime Producers for 12 months.

In cases of dispute between the Department and the producer, the Chief of Materials Engineering and Testing Services will outline a dispute resolution process.