

Applications Note

Insight on Color

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European BCR CRM 400 Tomato Red Tile Standard

There are two tomato tile standards in general use. The European and American tomato tile standards are tomato red in color but with different histories and traceability. The American tomato tile standard is available through HunterLab. Enclosed is information on the European tomato tile standard.

The purpose of both tomato tiles is to check long-term instrument repeatability and improve inter-instrument agreement of processed tomato products (paste, puree, sauce, catsup and juice) in tomato color space.



The BCR Tomato Paste Tile was designed to match the color of plum tomatoes and was manufactured by Ceram Research UK. In response to requests from the European Community, CERAM Research sent a number of clay-based "tomato red" tile standards to the Community Bureau of Reference (BCR) who measured them for BCR who in turn issues tile labels and certificates. BCR is now the IRMM - Institute of Reference Materials and Measurements, the research center of the Commission of the European Communities, a primary standards body.

This "European Tomato Red Tile" can be ordered as **BCR (Community Bureau of Reference) Tomato Paste Reference Tile RM No. 400** with assigned Hunter L, a, b C/2 values from:

European Commission

Directorate-General Joint Research Centre
Institute for Reference Materials and Measurements
Reference Materials Unit
attn. reference materials sales
Retieseweg 111B-2440 Geel, Belgium
TEL: +32 14 571 705
NET: <http://www.irmm.jrc.be/>
Email: jrc-irmm-rm-sales@cec.eu.int

Product is called "BCR-400 TOMATO PASTE COLOUR TILE"

Information on Tomato Paste Color Reference Tile CRM 400 from the IRRM Web Site:

“CRM 400 consists of a 10 cm x 10 cm ceramic tile the color of which is defined by Hunter L, a, b C/2 values. If other data are needed these may be calculated readily for the same geometry or illuminant/standard observer (45°/0° or 0°/45° viewing geometry, illuminant C/2° standard observer combination, aperture of $\sqrt{3}$ 50 mm nominal diameter. The nominal Hunter values of the tiles are: L = 26, a = 33 and b = 14.5.

Each tile is individually certified, the overall uncertainties on Hunter L, a and b values being ± 0.2 , ± 0.3 and ± 0.1 respectively. CRM 400 is intended for calibration purpose only and does not represent a standard tomato paste color.”

FAQ: "What if a client needs to get a BCR-400 TOMATO PASTE COLOUR TILE re-certified?"

To the best of my knowledge, that service is not available. The client is advised just to buy a new BCR-400 tile.

FAQ: "How does a client use this BCR CRM 400 Tomato Red Tile with their CLFX Tomato Meter"

- Change the normal 32-mm diameter port to the sample cup port (04-6622-00 Port Insert for 2.5-in (64-mm) Sample Cup).
- Standardize the ColorFlex using its own Black Glass and Calibrated White Tile.
- Select a setup that is not in use. If using a CLFX Tomato Meter, Setup # 10 is usually free.
- Change the setup parameters to the following:
 - Set Up Name can be something appropriate like “BCR Tomato Color”.
 - Standard: Hitch
 - Display: Absolute
 - Average: OFF (will take just 1 reading)
 - Ill/Obs: C/2
 - Color Scale: Hunter L, a, b (plain, no stars)
- Go down more steps until cursor is beside the L, a, b labels, and the command line at bottom of screen asks User to update Hitch Target values.
- Measure the BC CRM 400 Tomato Red Tile. The values should be similar to the assigned values.
- Adjust the read values until they match the Hunter L, a, b C/2 values assigned to the BC CRM 400 Tomato Tile.
- Return to the measurement mode and read the BCR Tile as an OQ (Operation Qualification) step. It should now read very closely to the values assigned to the tile showing the effect of the hitch.
- Fill the sample cup (04-7209-00 Glass Sample Cup 2.5-in (64-mm) diameter) with tomato product to near the top.
- Read the processed tomato product and record the Hunter L, a, b C/2 values for the sample as hitched to the BCR CRM 400 Tomato Tile.

FAQ: Every Day Measurement Procedure for CLFX 45/0 LAV with BCR CRM 400 Tomato Tile

- Make sure the sample cup port (04-6622-00 Port Insert for 2.5-in (64-mm) Sample Cup) is in place.
- Select the “BCR Tomato Color” Setup.
- Standardize the ColorFlex using its own Black Glass and Calibrated White Tile.
- Read the BCR Tile as an OQ (Operation Qualification) step.
- Place the BCR CRM 400 Tomato Tile at the port and take a reading.
- Make sure the instrument is reading within +/- 0.3 of the Hunter L, a, b C/2 values assigned to the tile. If the tile is not within those tolerances, re-set the Hitch.
- Fill the sample cup (04-7209-00 Glass Sample Cup 2.5-in (64-mm) diameter) with tomato product.
- Read the processed tomato product and record the Hunter L, a, b C/2 values for the sample as hitched to the BCR CRM 400 Tomato Tile.

For Additional Information Contact:

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