MICHELMAN®

James Machine

Operation Manual

MJM-D-100 Rev.F - 01.2019

michelman.com

Contents

Introduction

Protect yourself from liability by testing products' static coefficient of friction (COF) on your Michelman James Machine. ASTM calls this test "the only method appropriate for testing polishes for specific compliance with the D2047-93 standard."

To reproduce this real-life force, a piece of flooring material is placed on the table of the Michelman-James Machine and pressure is applied, and the point at which the testing foot of the Michelman-James Machine begins to slip is the COF. This value is displayed on the digital readout and recorded in short-term memory.

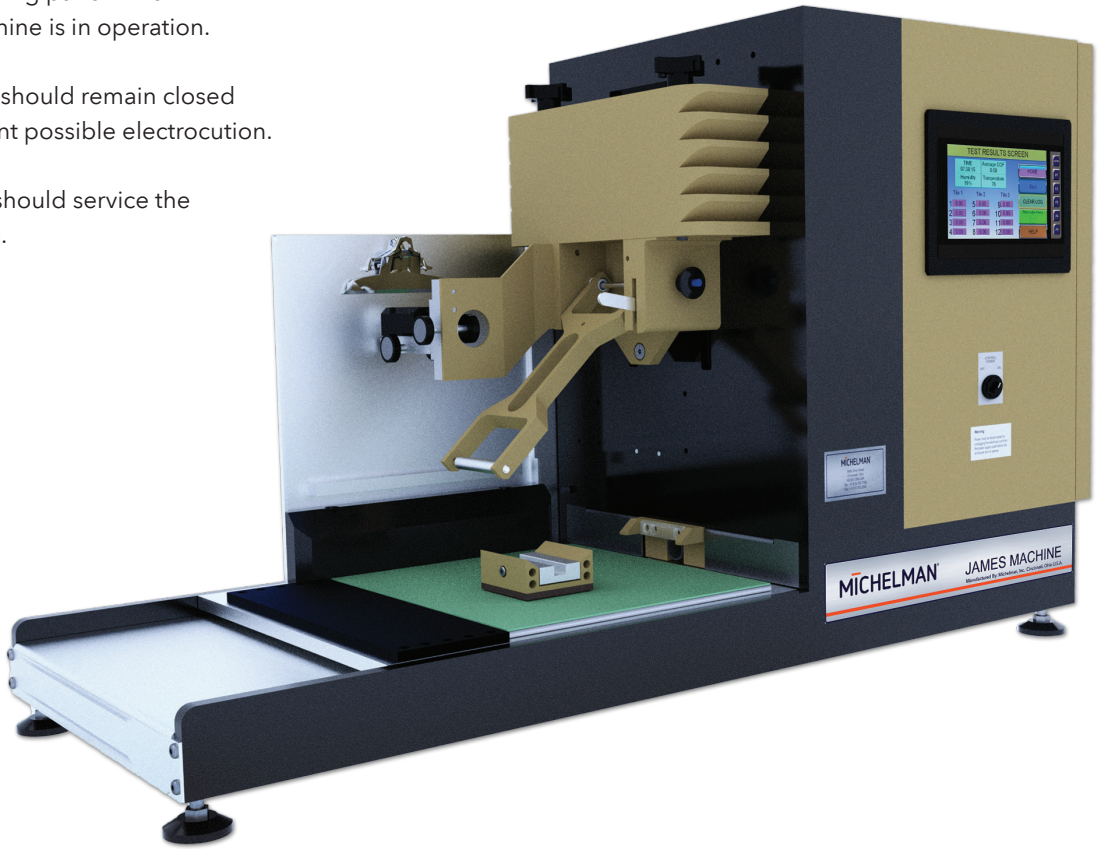
Before Use

The Michelman-James Machine is calibrated at the factory (see page 10). Under normal use, no further calibration should be necessary, unless a series of tests performed on a known substrate (board cover or other control tiles) indicates the machine has fallen outside an acceptable deviation of .0399.

To achieve accurate results, yourJames Machine must be operated in a temperature & humidity controlled environment of: **70° F (+3° to -5° F) at 50% humidity (+-) 3%.**

Safety

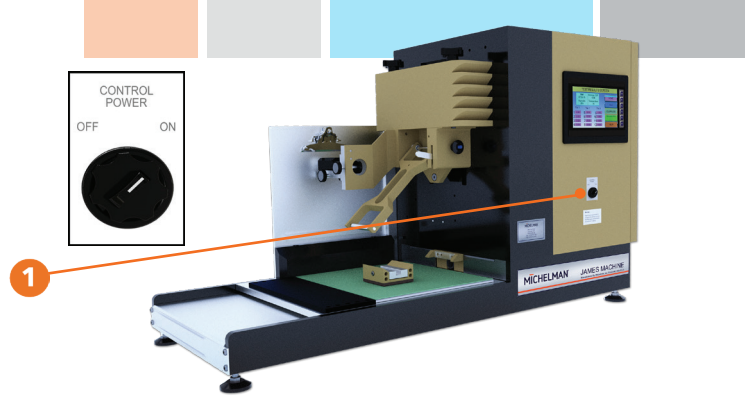
- Keep hands clear of all moving parts while the Michelman-James Machine is in operation.
- The electrical access panel should remain closed while in operation to prevent possible electrocution.
- Only qualified technicians should service the Michelman-James Machine.



Data Card Type

This unit uses a Micro SD card to record data from each test.

Controls



1 CONTROL-POWER: Power the machine on or off.

2 START: Begin the testing procedure.

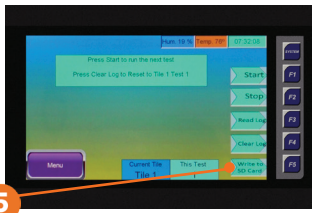
3 STOP/RESUME: Press anytime during the test procedure to interrupt travel of the table and arm assembly. To resume or begin a new test, press the *START* button.

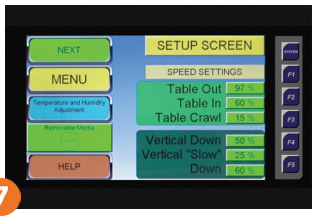
4 READ/CLEAR LOG: Press *READ* to review data. Press *CLEAR* then *YES* to clear the log of all test data.

5 WRITE TO SD: Option to log data to flash memory.

6 HELP: Provides access to topics covering *Flash Card*, *Excel Report*, *About*, and *Contact* information.

7 CALIBRATION / SET UP (FACTORY USE): This control places the machine into calibration mode to verify machine operation and is **password protected**.

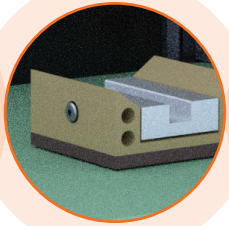




Test Material Supply List

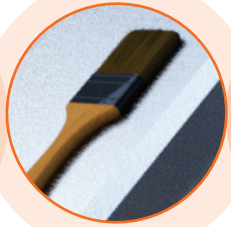
CLIMATE CONTROLLED ENVIRONMENT

PREP TABLE

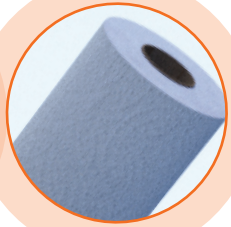


(HCPA) TEST SHOE MATERIAL

AUTOMOTIVE SAND-PAPER
400 grit, wet/dry



CLEAN, DRY PAINT BRUSH



CLEAN PAPER TOWELS

Note

- Test materials must be stored in a temperature and humidity controlled environment of **70° F (+3° to -5° F) at 50% humidity (+-) 3%** to achieve accurate test results.
- The Household Consumer Products Association **(HCPA)** is the agency that provides the test shoe leather. The test shoe leather is cut from a very specific section of the cow and will have marks to indicate the direction of the grain.
- It is critical not to touch the testing shoe material (leather) throughout the testing process.

Test Material Preparation

Testing Material Preparation (Sanding)

1) Ensure the testing shoe material, (supplied by the HCPA), is properly attached to the test shoe assembly.

2) Take the 9x11 inch wet/dry 400 grit automotive sandpaper and place it flat on the work table as shown in (**figure 3**).

3) Position the testing shoe assembly near the top of the 400-grit sandpaper.

4) While dragging the shoe material over the sandpaper, avoid applying any **downward pressure** on the test shoe assembly.

5) Rotate the test shoe assembly **90°** and **REPEAT STEP (4).**

6) Dry brush the coarse residual material away from the test shoe.

7) Dry wipe the test shoe material over a fresh paper towel to remove residual material.

8) Rotate the testing shoe assembly **90°**

9) Dry wipe the test shoe material over a fresh paper towel to remove residual material. **Your test shoe material is now ready for use in testing.**

James Machine Setup & Preparation

1) Place the James Machine on a low-vibration surface. For accurate results the James Machine must be operated in a climate controlled environment of: **70° F (+3° to -5° F) at 50% humidity (+-) 3%.**

2) Remove the shipping bracket. Add weight posts and weights.

3) Add the testing arm and position it upward to the (locked) position.

4) Level the machine by adjusting its feet. Use the hex nuts located on the feet to secure their position.

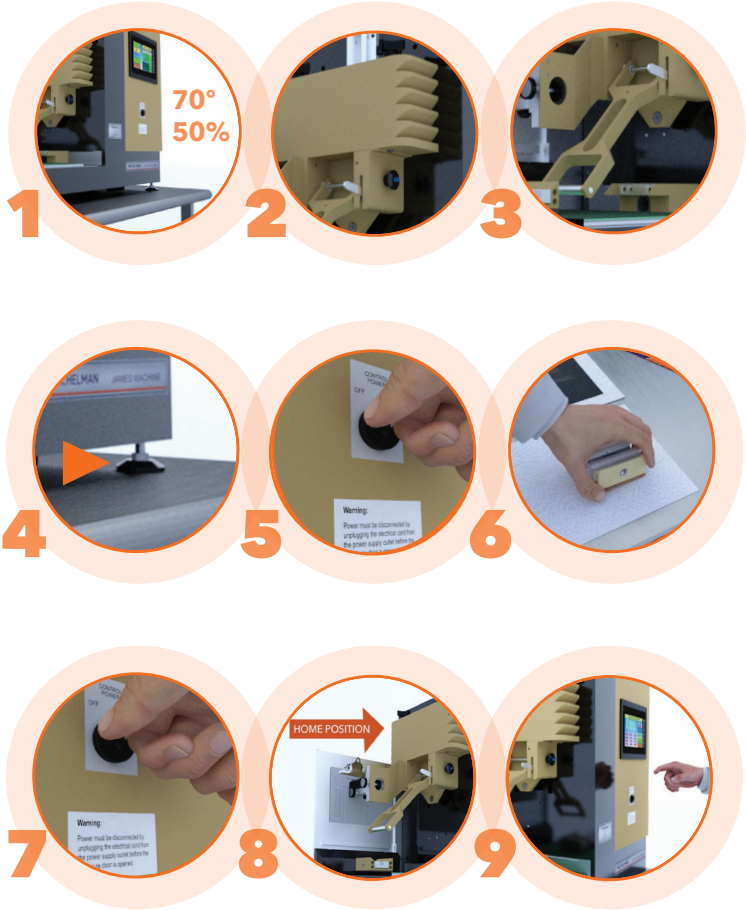
5) With the *CONTROL POWER* switch in the *OFF* position, plug the power cord into a 120-volt, 20-amp power source.

6) Prepare the shoe in accordance with ASTM-D-2047 standards. (Page 6)

7) Turn the *CONTROL POWER* switch to the *ON* position.

8) Press "START." The test table will move to the *HOME* position. You are now ready to run a test.

9) To run a test, refer to the *OPERATION* section (page 8).



Operation

1) Place the test chart on the chart board:
While the machine is in the *HOME* position, use the dials (**figure 1.1**) to align the pen near to the first chart line.

2) Prepare the tile per the ASTM-D-4103 standard.
- Place the tile on the test table.
- Adjust the tile by making sure it is flush against the sample stop.
- Lightly dust off the tile to make sure it is free of leather dust and any other extraneous matter.

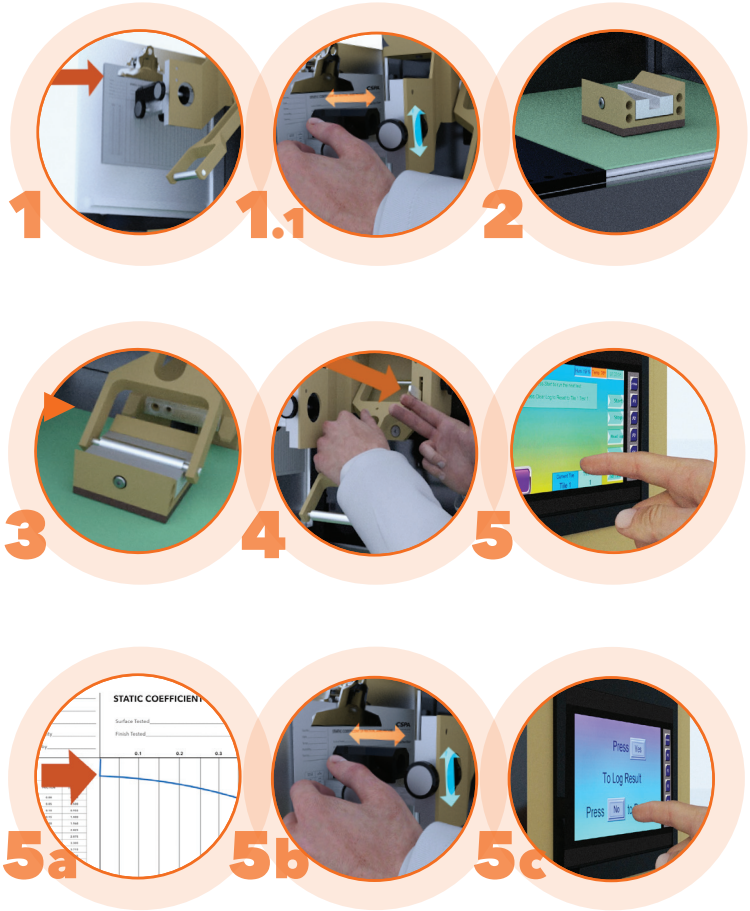
3) Place shoe between the tabs of the proximity switch bracket, directly beneath the travel arm.

4) Carefully unlatch the arm assembly by lifting the arm catch and lowering the arm to the correct position. (DO NOT LET THE ARM FREE-FALL OR DROP INTO POSITION! FAILURE TO FOLLOW THIS STEP CAN DAMAGE THE MACHINE.)

5) Press the *START* button to begin the test.
As the weights lower...

a) Align the chart to the first line with the Pen.

b) After the test is complete, remove the pen from the chart by dialing it back away from the chart and dialing it a quarter of a turn downward.



Operation (Continued)

5) cont'd

c) Save the test results after being prompted (after 10 seconds). If the test is valid, select *YES* to return the arm assembly to the home position. Select *NO* if the test becomes invalid, this assures that it will not be a log entry.

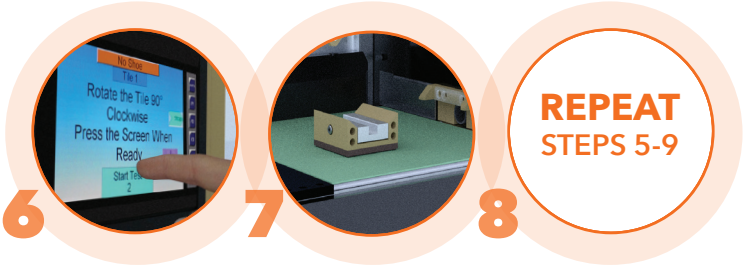
6) Turn the test tile clockwise **90°** after prompting.

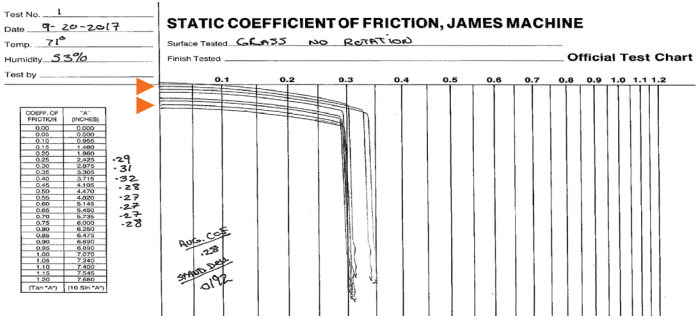
7) Adjust the tile by making sure it is flush against the sample stop. Lightly dust off the tile to make sure it is free of leather dust and any other extraneous matter.

8) Carefully unlatch the arm assembly by lifting the arm catch and lowering the arm to the correct position. **(DO NOT LET THE ARM FREE-FALL OR DROP INTO POSITION! FAILURE TO FOLLOW THIS STEP COULD DAMAGE THE MACHINE).**

9) Repeat steps 5 through 9 as required by the standard. The log will record and hold data for three tiles at four sides each, for a total of 12 tests. After the 12th test run or three tiles are complete, you can save the displayed test results to the flash memory card.

10) View the results of your test by pressing *VIEW LOG* on the control panel. You may also print your test results by using the CSV files recorded on the machines MICRO-SD card.





Troubleshooting

PROBLEM	CAUSE	SOLUTION
Tester not returning to home position	No power to motor	Confirm power to outlet
		Check fuse in panel
		Check prox for contact
Arm Assembly not lowering	No power to motor	Confirm power to outlet
		Check fuse in panel
		Check prox for contact

Deviation Check

Your James Machine must be operated in a temperature and humidity controlled environment of **70° F (+3° to -5° F) at 50% humidity (+-) 3%.**

The Michelman-James Machine is calibrated at the factory. Under normal use, no further calibration should be necessary, unless a series of tests performed on a known substrate (board cover or other control tiles) indicates the machine has fallen outside an acceptable deviation of .0399.

To check for deviations, users should perform two control tile tests with and without tile rotation. Utilize a minimum of 8 control tests without rotating the test tile between weight drops. Then facilitate a series of 8 control tests with rotating the tile between weight drops, or 16 weight drops total, to confirm the machine is performing correctly. Deviation should be checked after 8 drops on each series of tests.

If you determine the machine is out of calibration, make arrangements with Michelman to return your machine for re-calibration.

FALSE-POSITIVES: The James Machine may at times report a single random high-read or false-positive. These are due to variants in the test conditions of the tested materials, and not because of calibration errors.

Deviation Check (continued)

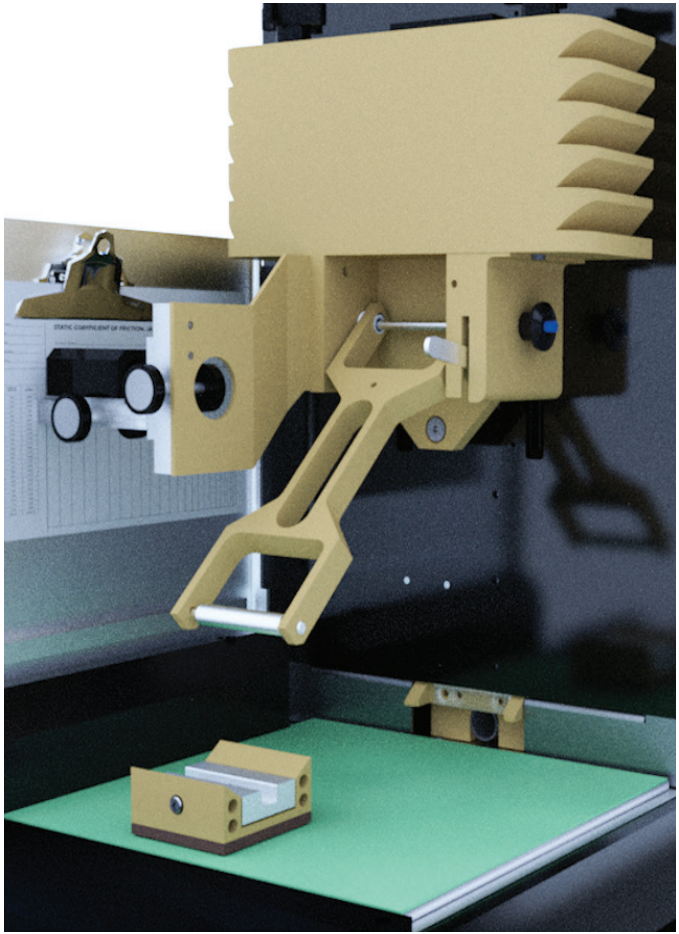
Variables may include the buildup of residual or loose testing material, micro polish of the material surface, micro levels of condensation or brief introduction of other external material(s) that served to lubricate or interfere with direct surface contact of the two test materials. Should this occur, it is acceptable to discard the single random high read as part of your test data.

Factory Recalibration - Exchange Program

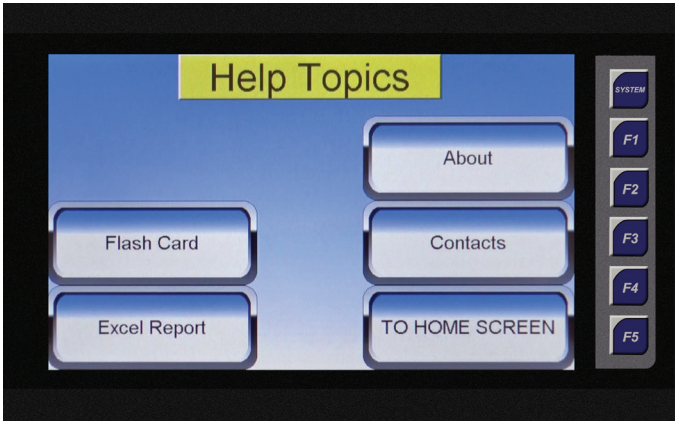
In the unlikely event that your James Machine requires recalibration, please contact Michelman to arrange for the return of your equipment. Addtional maintenance and shipping fees may apply.

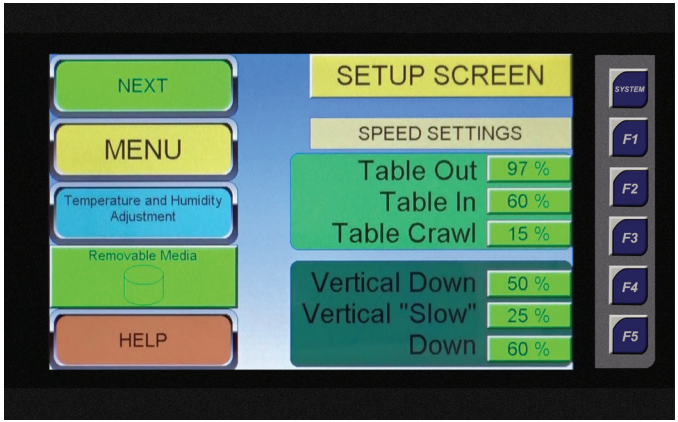
HCPA Test Material Resources

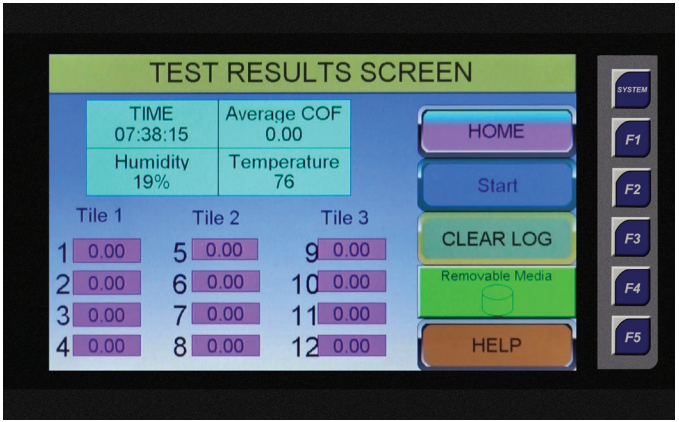
To replace the board cover, and/or other acceptable substrates as well as machined aluminum plate,
testing charts and replacement shoe leather material, please go to the Household & Consumer Products Association (HCPA) at **www.thehcpa.org.**



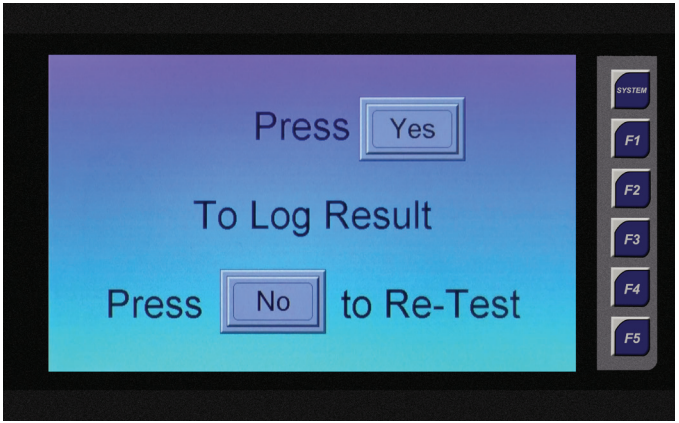
Help Screen Previews







Help Screen Previews (continued)



MICHELMAN®

Innovating a Sustainable Future

As a global developer and manufacturer of environmentally friendly advanced materials for industry, Michelman offers solutions for the coatings, printing & packaging, and industrial manufacturing markets. Motivated by unwavering values, and ingrained with a passion for environmentally conscious innovation, we help companies around the globe establish and achieve their product development goals. With access to Michelman's expert materials resources—a compelling combination of world-class talent and specialty chemistries—our customers are excelling in the diverse range of markets they serve with sustainable and responsible solutions.

Please contact our experts in your region for further information.

Americas
Michelman, Inc.
Tel : +1-513-793-7766
Fax: +1-513-793-2504

China
Michelman New Material
(Shanghai) Co., Ltd.
Tel: +86 21 2098 6880
Fax: +86 21 2098 6881

India
Michelman Private Limited
(f.k.a. Michelman Chemicals Pvt Ltd)
Tel: +91 22 28672783
Fax: +91 22 28672784

Japan
Michelman Japan LLC
Tel: +81-3 45 80 14 90
Fax: +81-3 45 80 27 01

Luxembourg
Michelman SARL
Tel : +352 26 39 44 1
Fax: +352 26 39 44 80

Singapore
Michelman Asia-Pacific Pte. Ltd.
Tel: +65 6861 2822
Fax: +65 6861 2262

Edition: 01/2019 US