



A Program of ASTM International

# ***Test Monitoring Center***

<https://www.astmtmc.org>

## **ASTM Reference Testing Semi-Annual Report D7216 LDEOC**

Spring 2022

# LDEOC Test Activity\*

| Test Status                   |    | Ethylene Acrylate | Fluoroelast. | Nitrile   | Polyacrylate | Silicone  | Total      |
|-------------------------------|----|-------------------|--------------|-----------|--------------|-----------|------------|
| Acceptable Calibration Test   | AC | 69                | 72           | 75        | 76           | 84        | 376        |
| Failed Calibration Test       | OC | 1                 | 0            | 3         | 0            | 1         | 5          |
| Operationally Invalid, by lab | LC | 0                 | 0            | 0         | 0            | 1         | 1          |
| Operationally Invalid, by TMC | RC | 0                 | 0            | 1         | 0            | 0         | 1          |
| Aborted                       | XC | 0                 | 0            | 1         | 0            | 1         | 2          |
| Industry Information Runs     | AG | 0                 | 0            | 0         | 0            | 0         | 0          |
| <b>Total</b>                  |    | <b>70</b>         | <b>72</b>    | <b>80</b> | <b>76</b>    | <b>87</b> | <b>385</b> |

\*October 1, 2021 - March 31, 2022

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# LDEOC Lost Tests\*

| Validity | Cause                     | #        |
|----------|---------------------------|----------|
| XC       | Bath temperature off-spec | 2        |
| RC       | Bath temperature off-spec | 1        |
| LC       | Tensile testing failure   | 1        |
|          | <b>Total</b>              | <b>4</b> |

\*Invalid and aborted calibration tests

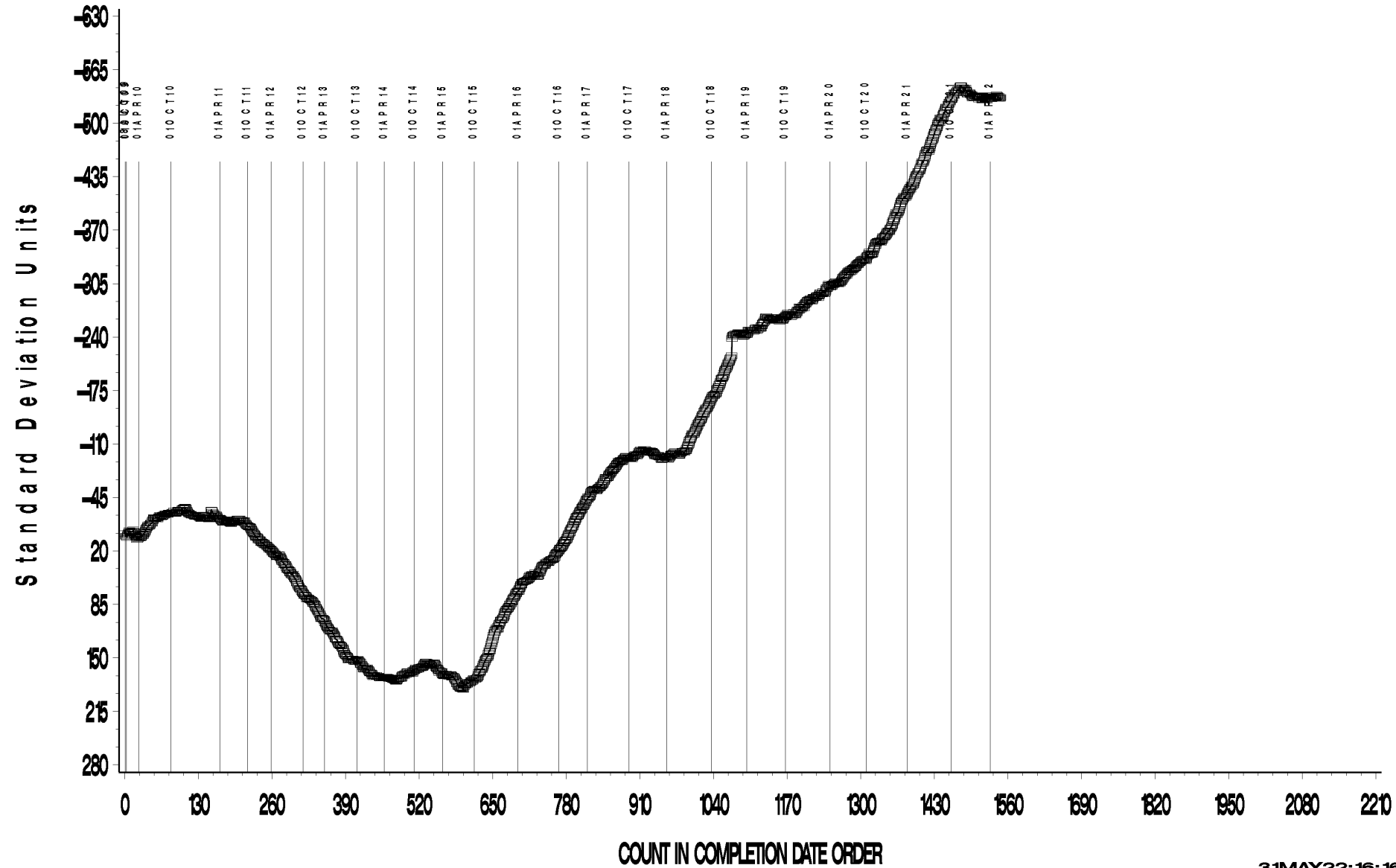
# LDEOC Test Severity

- ▶ Ethylene Acrylate (AEM1)

| Parameter               | Period<br>Mean $\Delta/s$ | Status |
|-------------------------|---------------------------|--------|
| Volume Change           | -0.05                     | Mild   |
| Points Hardness Change  | -0.65                     | Mild   |
| Tensile Strength Change | 0.11                      | Severe |

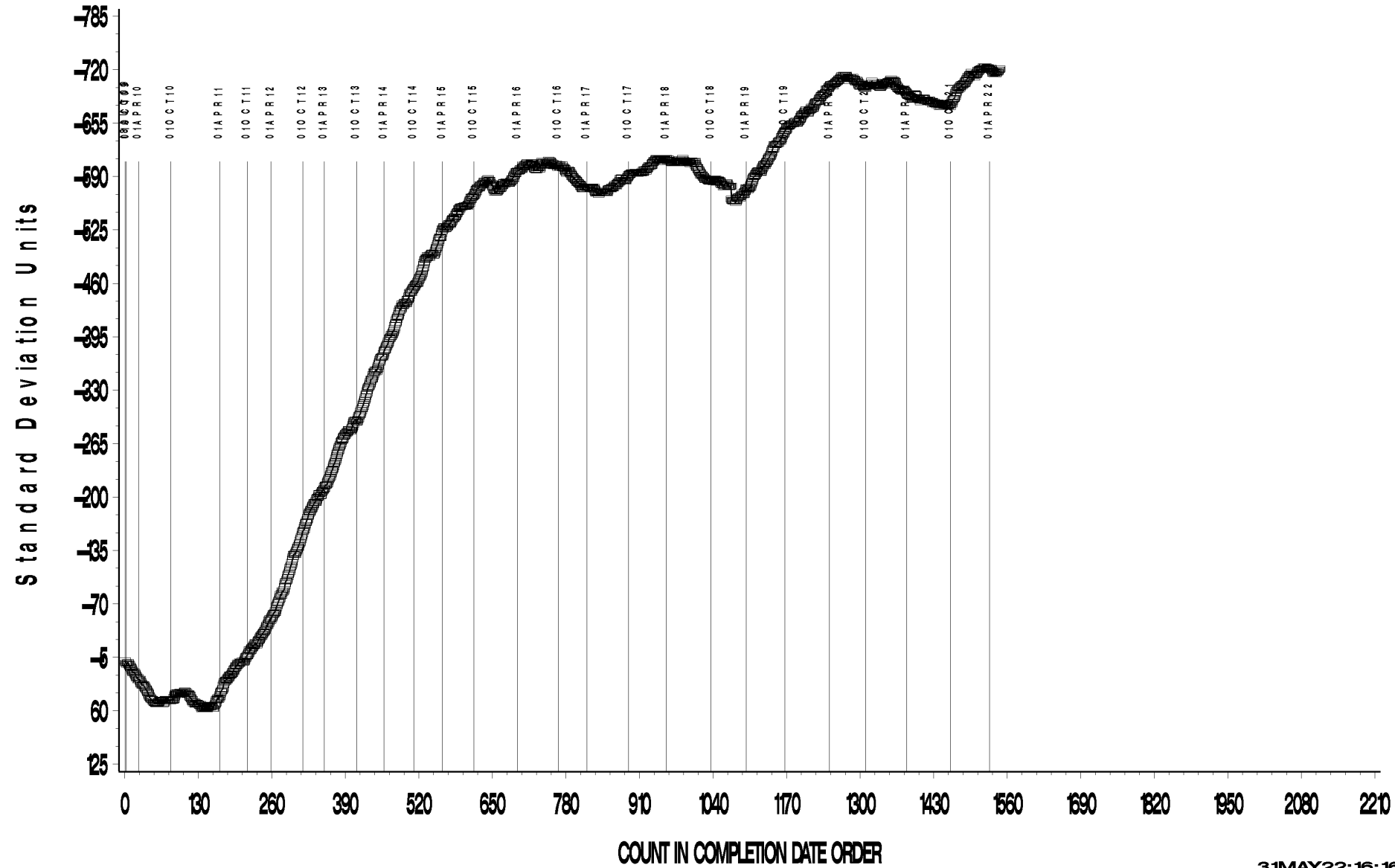
REF ETH ACRYLATE VOLUME CHANGE FINAL

CUSUM Severity Analysis



REF ETH ACRYLATE POINTS HARDNESS CHANGE FINAL

CUSUM Severity Analysis



REF ETH ACRYLATE TENSILE STRENGTH CHANGE FINAL

CUSUM Severity Analysis



# LDEOC Test Severity

## ▶ Fluoroelastomer (FKM1)

| Parameter               | Period<br>Mean $\Delta/s$ | Status |
|-------------------------|---------------------------|--------|
| Volume Change           | -0.34                     | Mild   |
| Points Hardness Change  | -0.17                     | Mild   |
| Tensile Strength Change | 0.52                      | Severe |



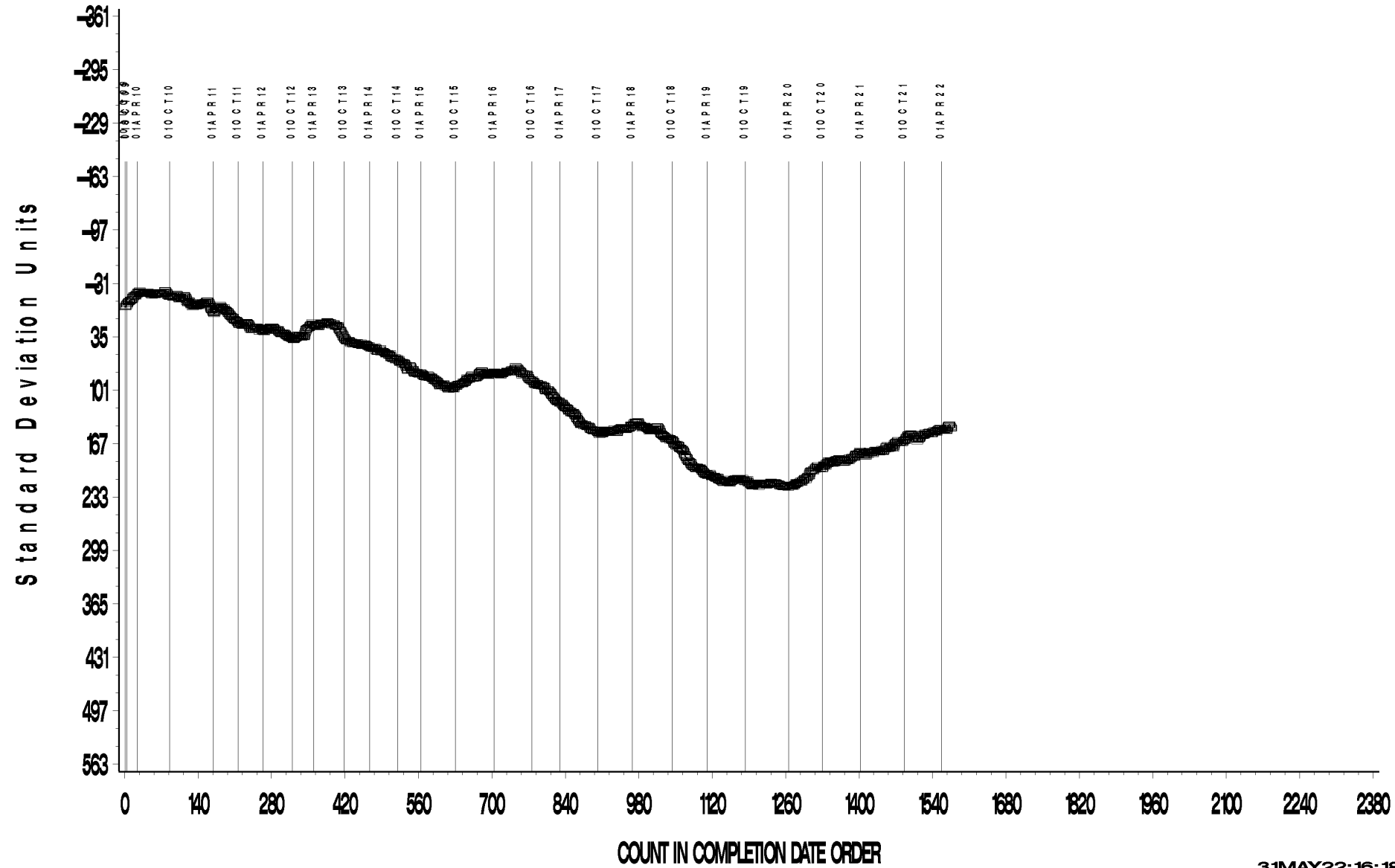
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CUSUM Severity Analysis



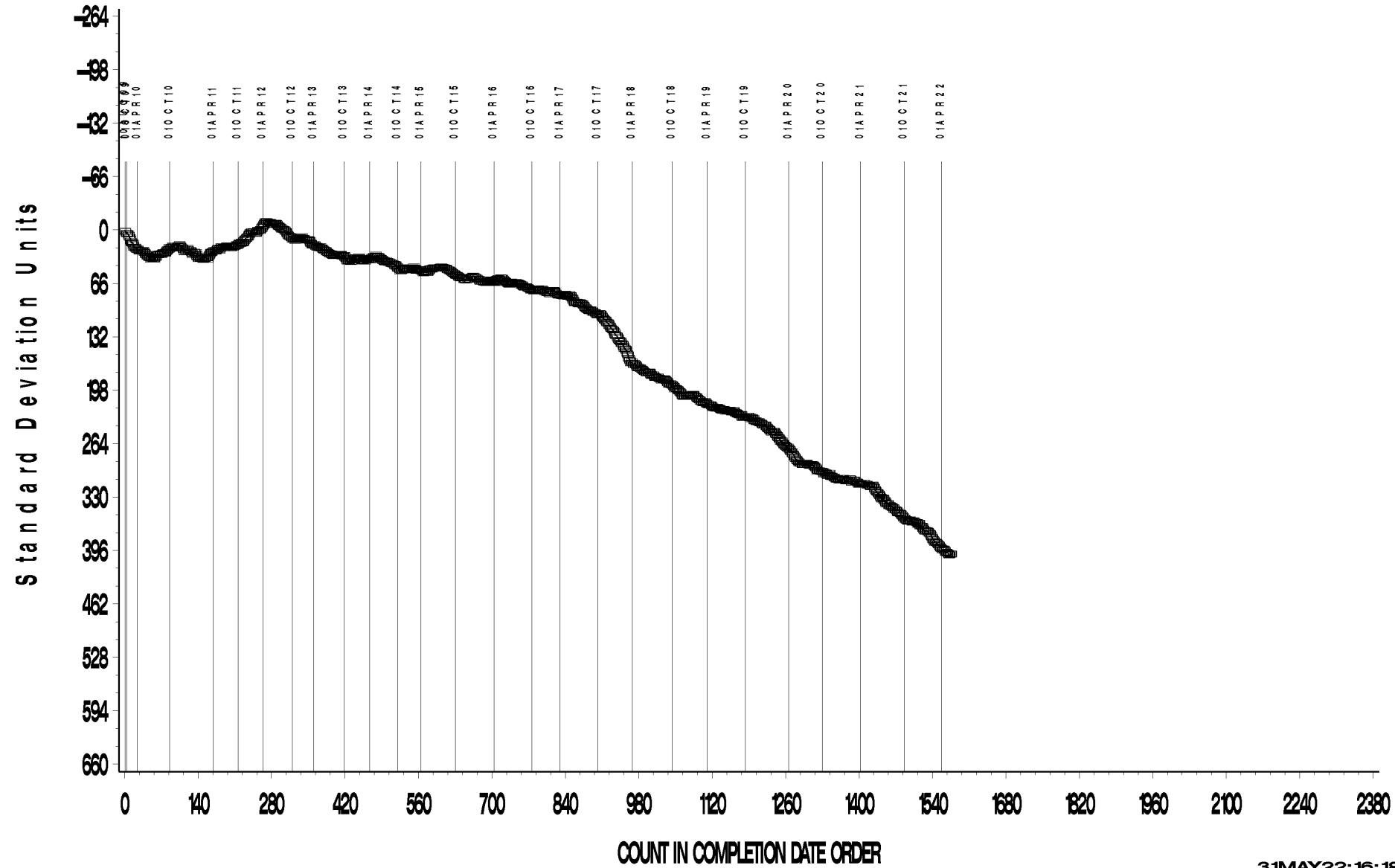
REF FLURO POINTS HARDNESS CHANGE FINAL

CUSUM Severity Analysis



REF FLUORO TENSILE STRENGTH CHANGE AVERAGE

CUSUM Severity Analysis



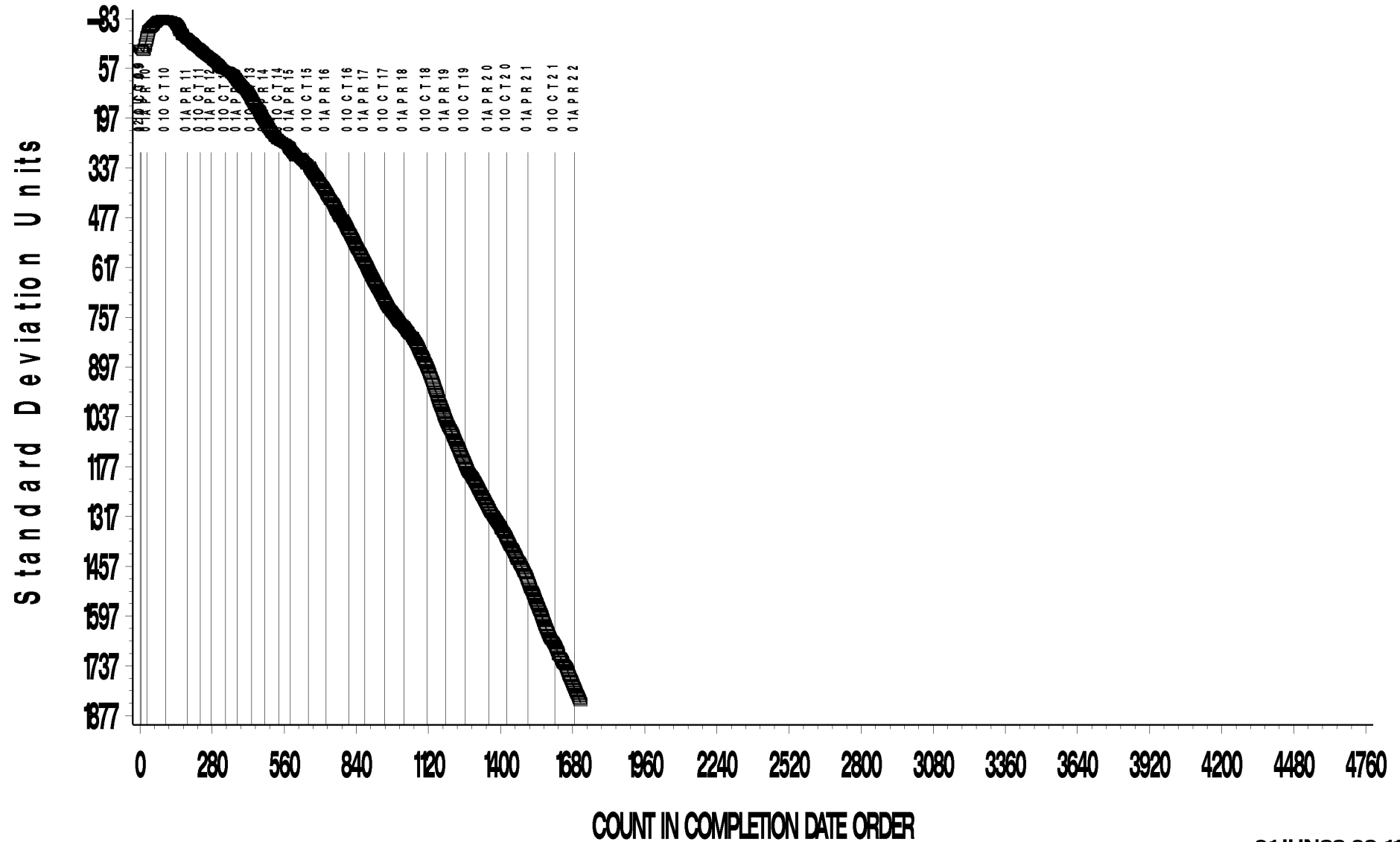
# LDEOC Test Severity

## ▶ Nitrile (NBR1)

| Parameter               | Period<br>Mean $\Delta/s$ | Status |
|-------------------------|---------------------------|--------|
| Volume Change           | 1.57                      | Severe |
| Points Hardness Change  | -0.71                     | Mild   |
| Tensile Strength Change | -0.87                     | Mild   |

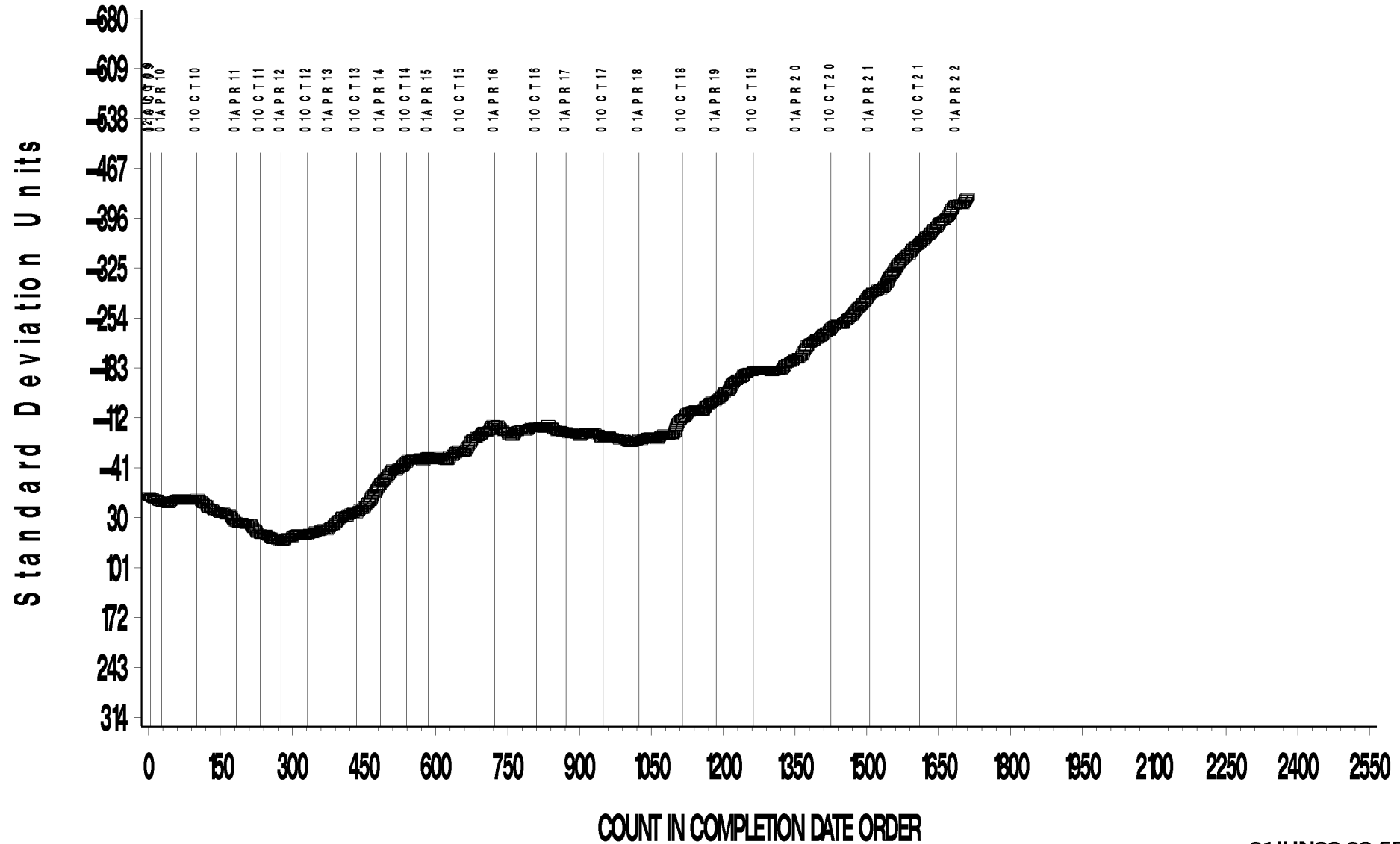
REFERENCE NITRILE VOLUME CHANGE FINAL

CUSUM Severity Analysis



REF NITRILE POINTS HARDNESS CHANGE AVERAGE

CUSUM Severity Analysis



REF NITRILE TENSILE STRENGTH CHANGE FINAL

CUSUM Severity Analysis



# LDEOC Test Severity

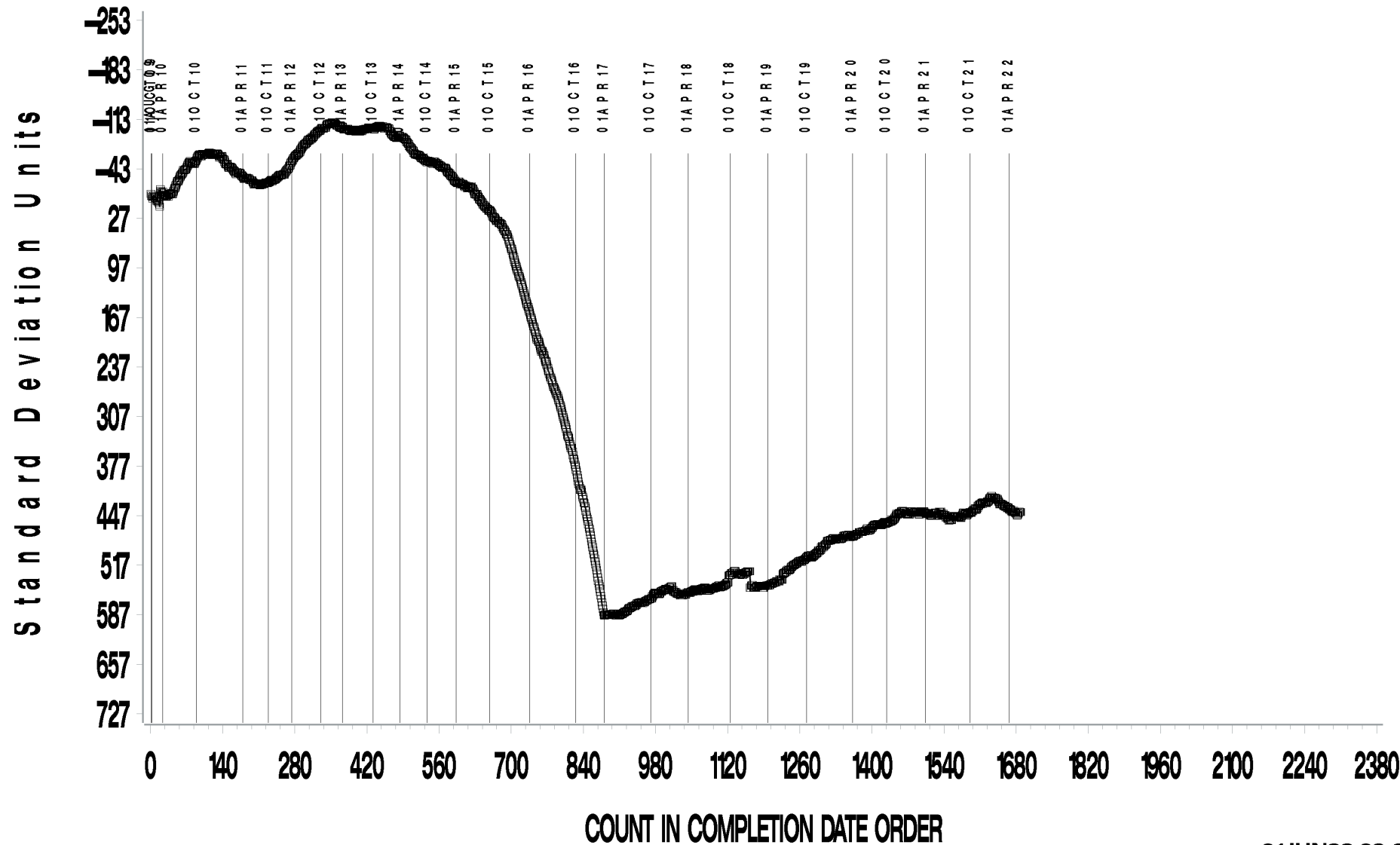
- ▶ Polyacrylate (ACM1)

| Parameter               | Period<br>Mean $\Delta/s$ | Status    |
|-------------------------|---------------------------|-----------|
| Volume Change           | -0.06                     | On-target |
| Points Hardness Change  | -0.92                     | Mild      |
| Tensile Strength Change | -0.48                     | Mild      |



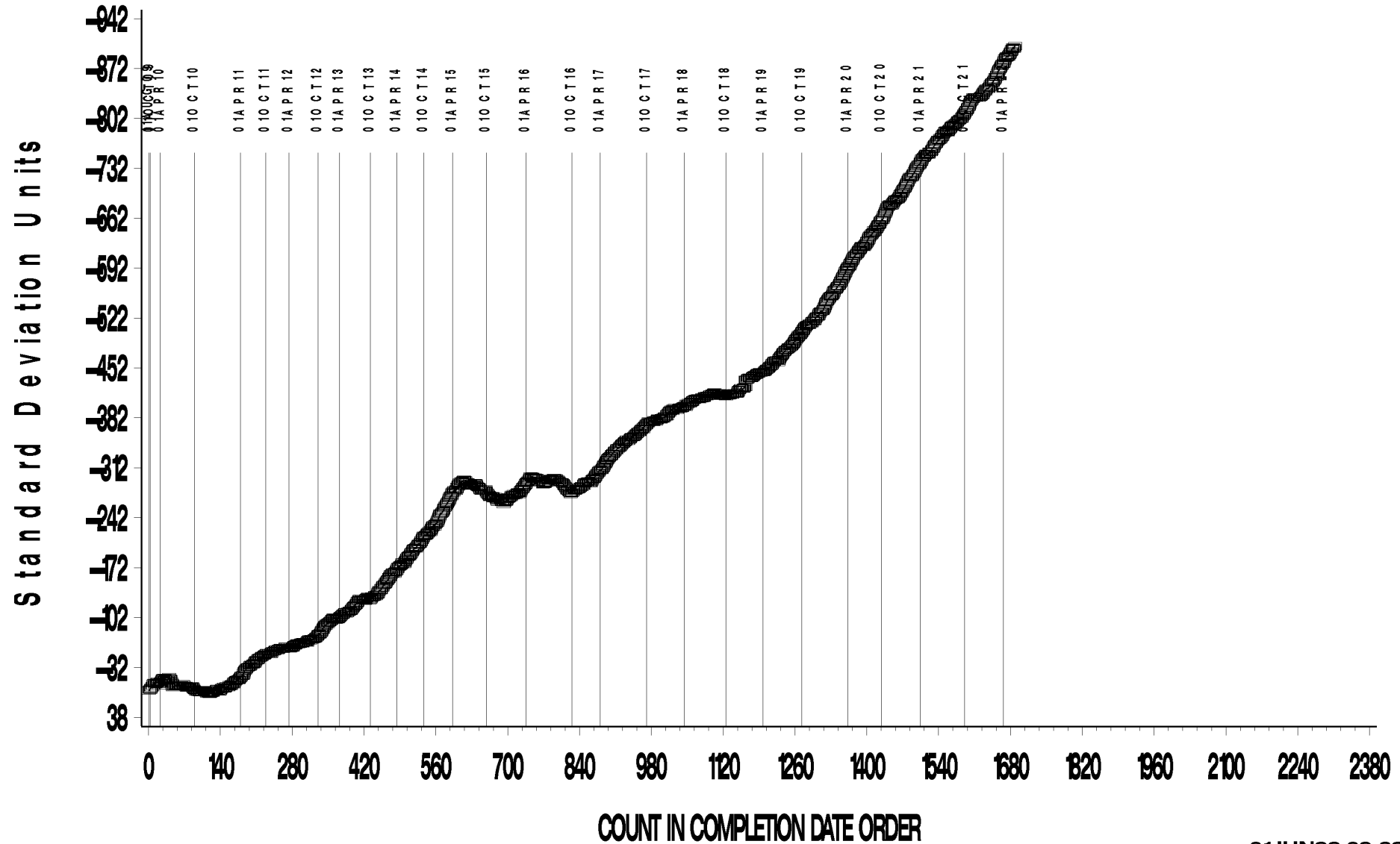
REF POLYACRYLATE VOLUME CHANGE FINAL

CUSUM Severity Analysis



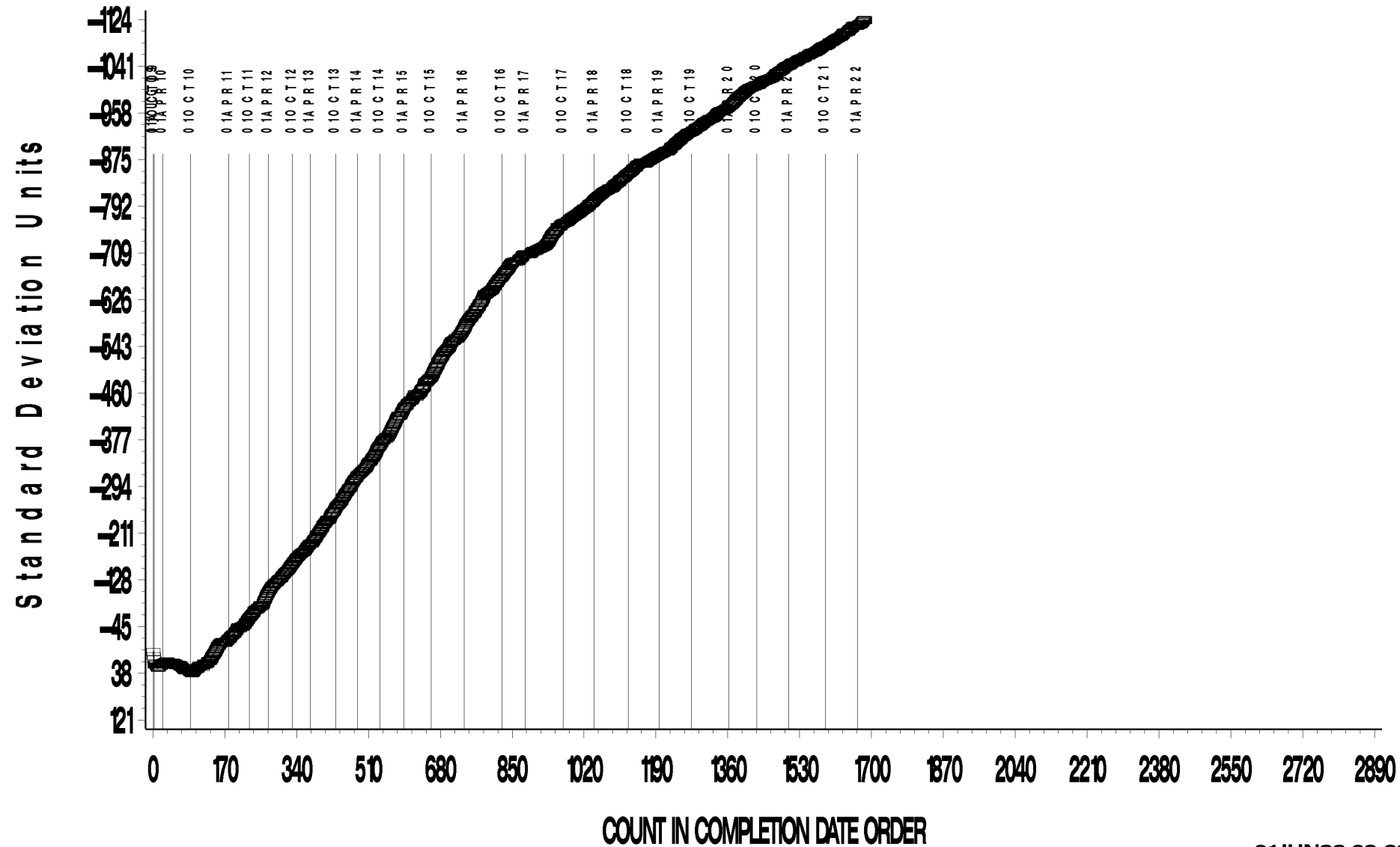
REF POLYACRYLATE POINTS HARDNESS CHG FINAL

CUSUM Severity Analysis



REF POLYACRYLATE TENSILE STRENGTH CHG FINAL

CUSUM Severity Analysis



# LDEOC Test Severity

- ▶ Silicone (VMQ1)

| Parameter               | Period<br>Mean $\Delta/s$ | Status |
|-------------------------|---------------------------|--------|
| Volume Change           | 0.36                      | Severe |
| Points Hardness Change  | -0.98                     | Mild   |
| Tensile Strength Change | 0.59                      | Severe |

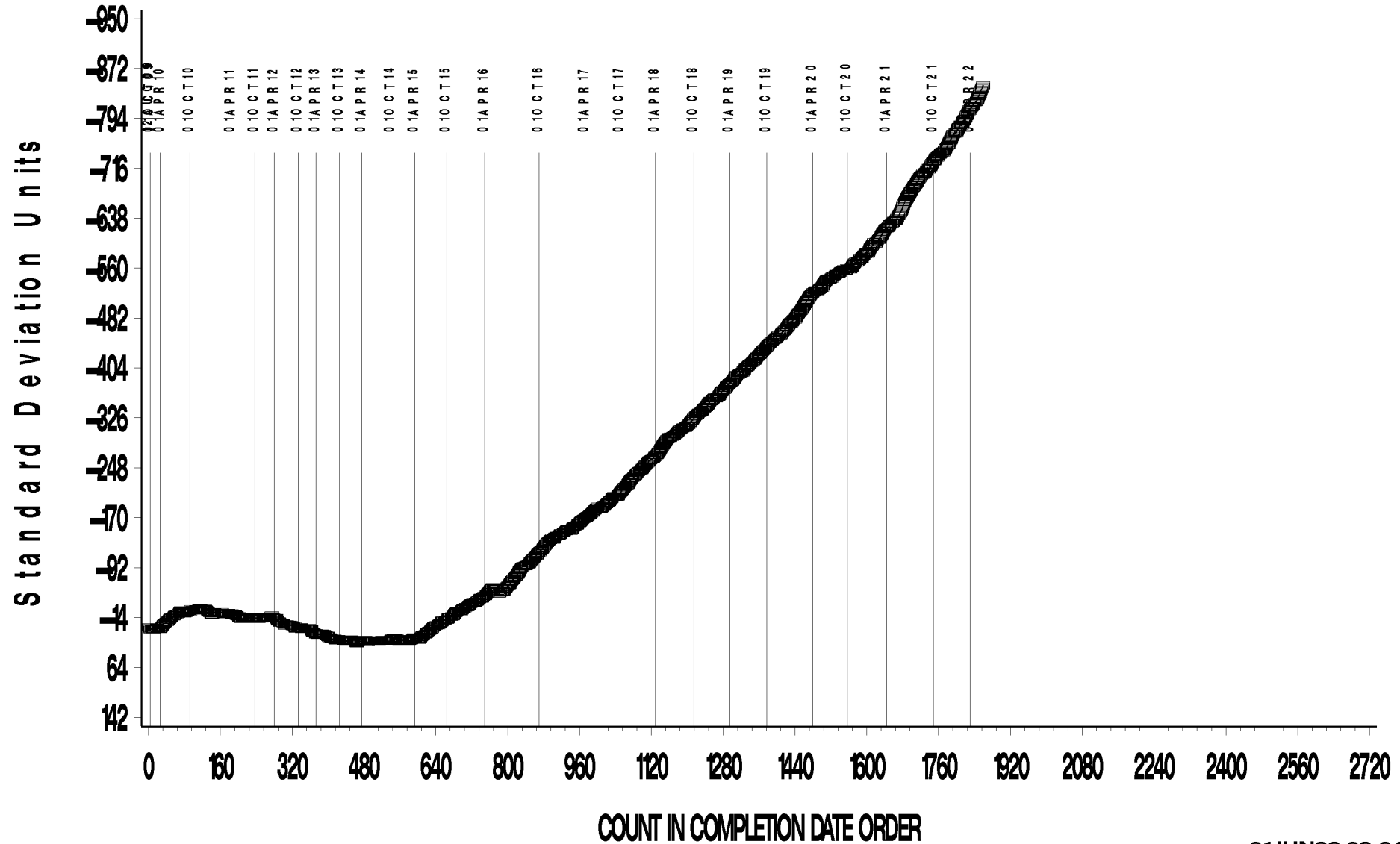
REFERENCE SILICON VOLUME CHANGE FINAL

CUSUM Severity Analysis



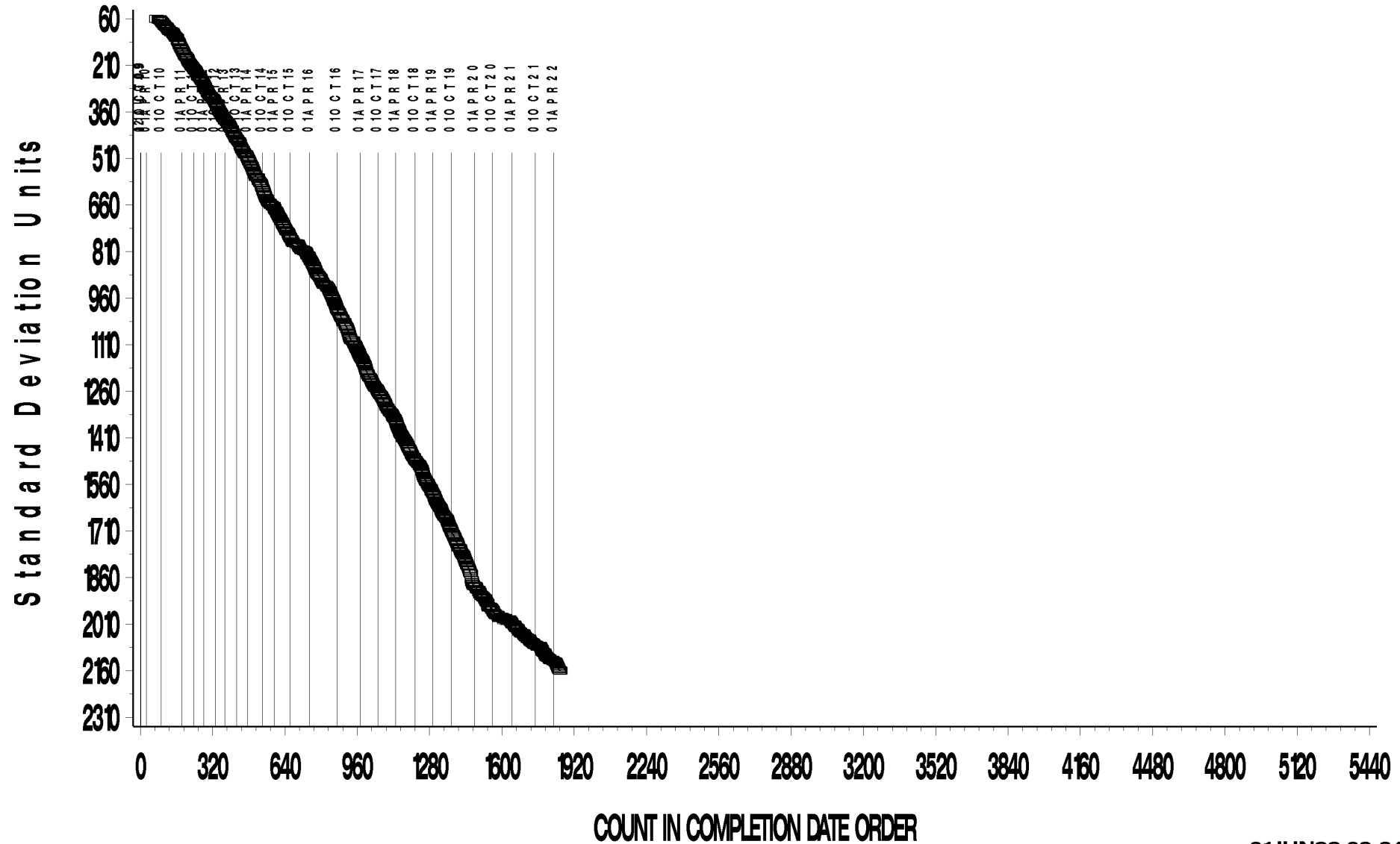
REFERENCE SILICON POINTS HARDNESS FINAL

CUSUM Severity Analysis

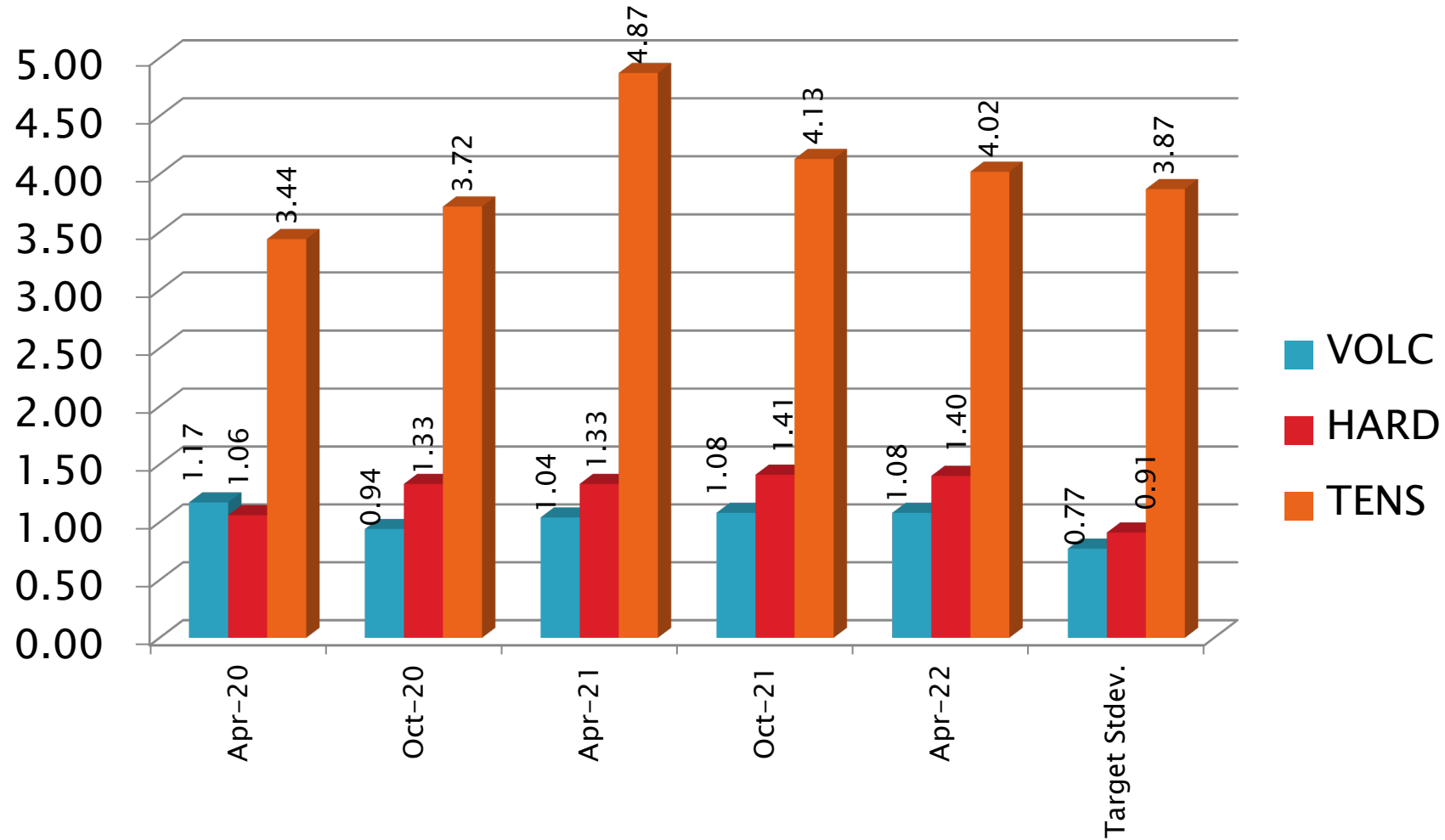


REF SILICON TENSILE STRENGTH CHANGE FINAL

CUSUM Severity Analysis

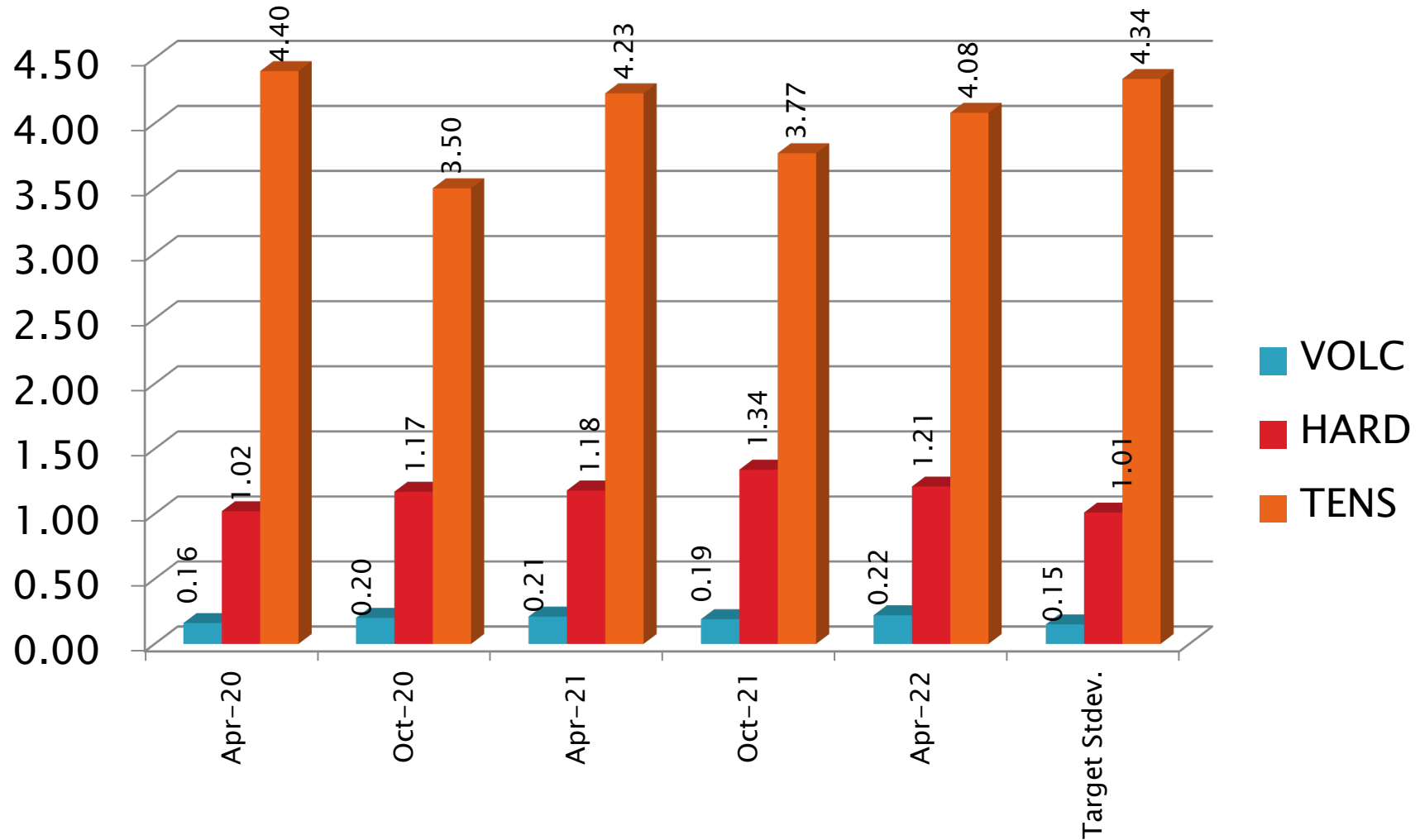


# LDEOC Precision Estimates - Ethylene Acrylate

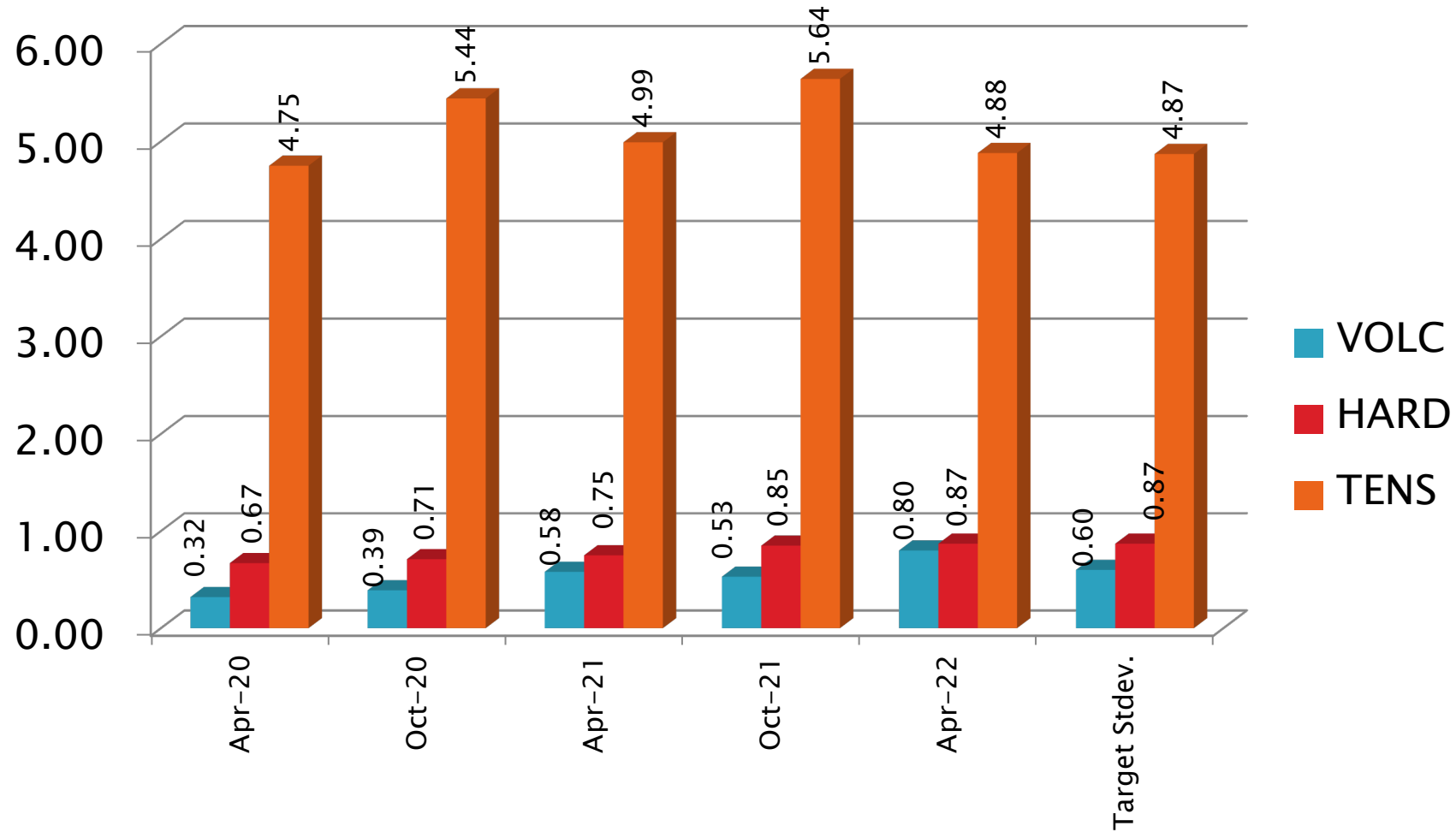




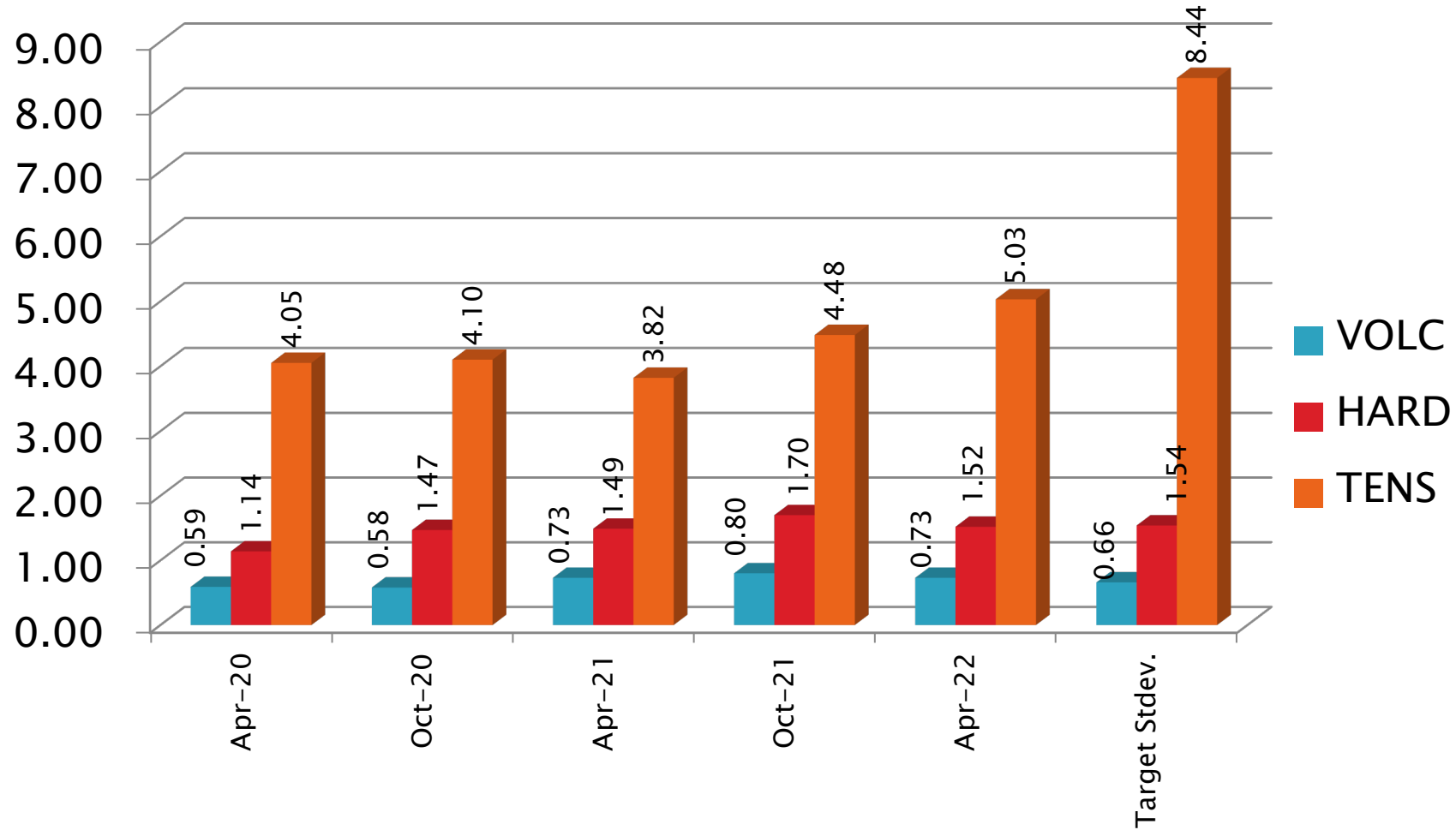
# LDEOC Precision Estimates - Fluoroelastomer



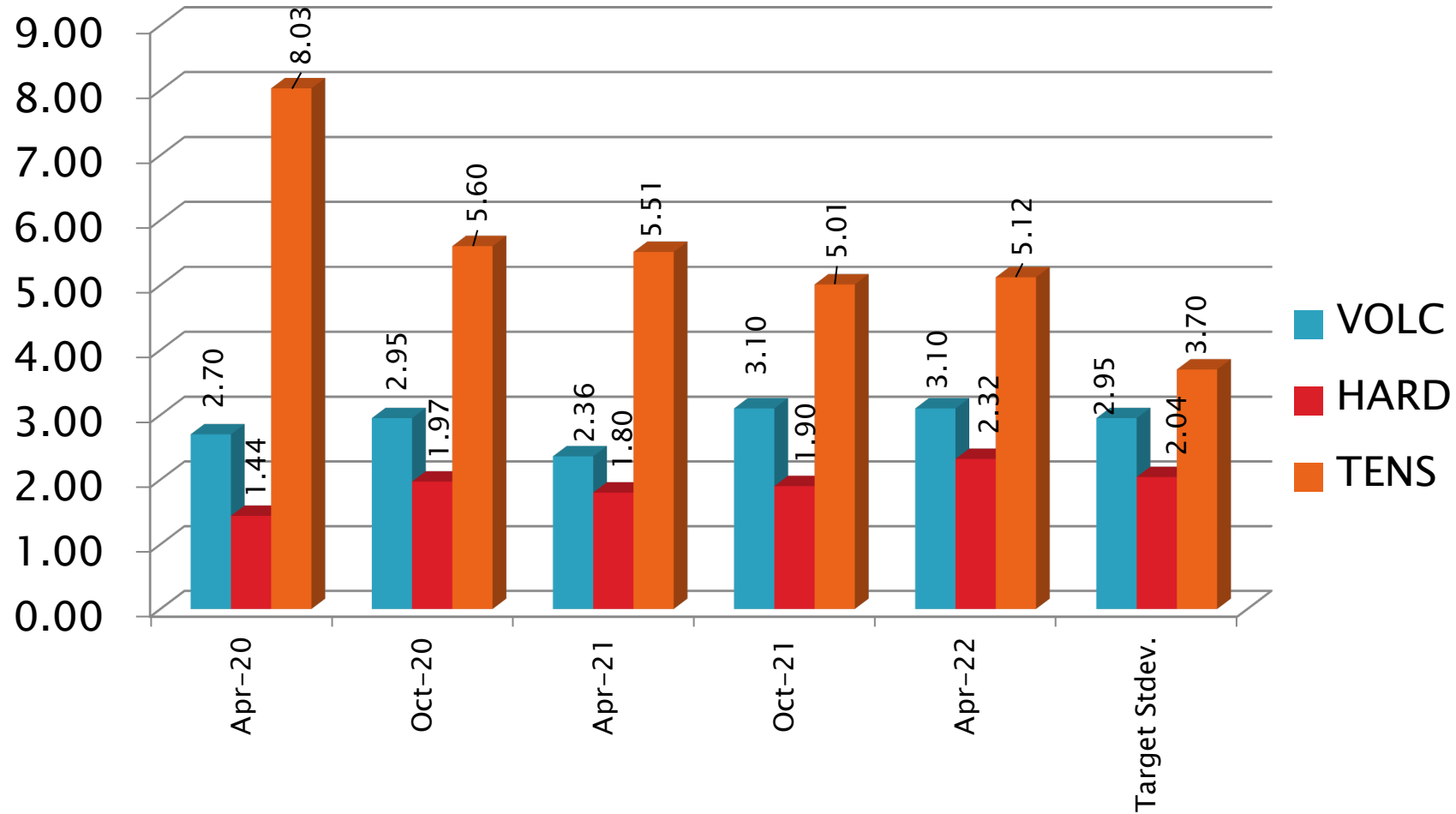
# LDEOC Precision Estimates – Nitrile



# LDEOC Precision Estimates - Polyacrylate



# LDEOC Precision Estimates - Silicone



# Information Letters & Technical Updates\*

| Test | Date | IL or Memo Number | Topic |
|------|------|-------------------|-------|
| -    | -    | -                 | -     |

\*Available from TMC Website

\*\*Issued after report period end

**Test Monitoring Center**  
<https://www.astmtmc.org>



# Reference Oil Inventory Estimated Life

| Oil                   | TMC Inventory Gallons | Gallons Shipped Past 12 Months | Estimated Life |
|-----------------------|-----------------------|--------------------------------|----------------|
| SL107 <sup>A, B</sup> | 2845                  | 182                            | 5 years        |

<sup>A</sup>TMC Inventory is used across several test methods

<sup>B</sup>SL107 replaces oil 1006; still assigning existing lab inventories of 1006 batches where available.

# Miscellaneous Information

- ▶ Available on TMC Website:
  - Oil Assignment Request and Test File Upload
  - Live Reference Test Data Bases
  - Surveillance Panel Meeting Minutes
- ▶ <https://www.astmtmc.org>



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