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IEC 60456 Ed. 5

empa⁺testmaterials

Coming Modifications of IEC 60456

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for

IEC 60456 Workshop

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Revision of IEC 60456

Edition 4 was published in Oct 2003. Clearly, short comings were noted towards global application of the standard for VA platforms.

SC59D mandated the global advisory group to:

Prepare proposals for modifications of IEC60456 for consideration by SC59D and its working groups to make the standard more globally applicable.

SC59D approved the changes proposed for 5th edition by MT15 in Frankfurt meeting- April 2005, which will enable the standard being more global.

A range of SC 59D groups have been undertaking development work for improvement since then towards making the next edition (edition 5) more globally applicable as mandated by SC 59D.

- WG 13 Test materials
- WG 17 Global application
- WG 18 Uncertainty
- WG 19 Reference machines and cycles
- WG 20 Rinsing

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Guiding principles for edition 5

Two key elements:

Global acceptance and application of the standard

No serious adverse transitional impact to current users of the standard (HA systems)

(Measures for success for 5th edition)



Unique approaches towards global acceptance

Proactive approach to get feedback regarding issues in the current edition as well as proposed changes in the next edition to improve the global acceptance.

WG and SWGs with global participation formed to research and address proposed changes and validation.

Structures Team within MT15 (standard maintenance team) with North American, European, Asian and Australian representation to guide the changes.

Leverage the research and testing work in progress within CECED, AHAM and JEMA.



Unique approaches towards global acceptance

Uncertainty Improvement: Informative annex on Guideline for good laboratory practice added; Uncertainty quantification based on 2005/2006 RR tests updated in the TR; Plan for Repeatability and Reproducibility Assessment in place based on 5th edition draft.

Improved loading and Folding method to suit VA, HA and TT wash systems

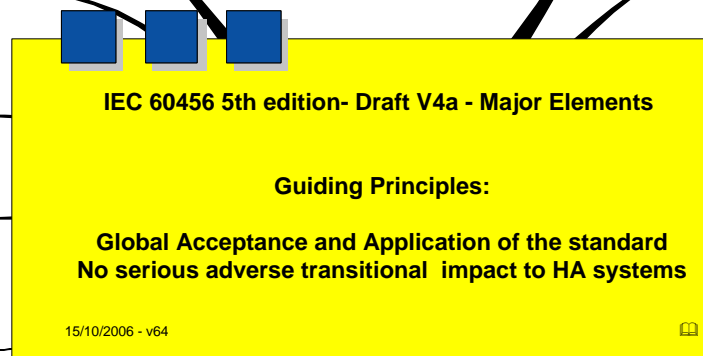
Test capacity definition when rated capacity is not declared; Changed to remove the ambiguity in Ed4 and to encourage declaration

Structure of 5th Edition simplified for Improved clarity.

Proactive approach to standard acceptance globally - 5th edition Changes derived using feed back from 4th edition users globally

Background to requirements of IEC 60456 added: To explain the reasons for the requirements in the standard and to explain what impact it may have when the requirements are not followed, for example, to reduce the testing cost.

Additional relevant low power mode " LEFT ON" mode definition added based on its significance



IEC 60456 5th edition- Draft V4a - Major Elements

Guiding Principles:

Global Acceptance and Application of the standard
No serious adverse transitional impact to HA systems

15/10/2006 - v64

MA / Shrinkage/ Fabric Care test - PAS Published

Wool Shrinkage test: Simplified - No intermediate measurement reqd.

Wascator CLS - new reference system - Qualified

New Reference Cycles: C20 and C30 : Informative Annex on reference program compared to typical household machine program.

Expanded Stain / soil set; Sebum & Aged Red Wine

Water Hardness: Soft 50ppm, and current 250 ppm

Detergent Dosage: Soft 2/3 of current

Rinsing - Refined alkalinity method, Large extractor



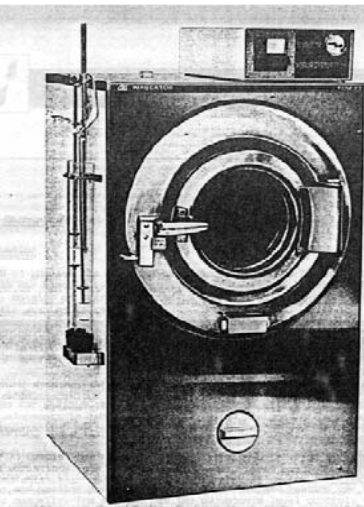
What's New? What's Different?

Reference machine:

- Introduction of new reference machine Wascator CLS.

Reference programs:

- New reference programs for VA application.
- Changes / adaptations of existing standard programs.



FOM 71S
1969 - 1989



FOM 71MP
1984 - 1993



FOM71MP/Lab
1990 - 2002

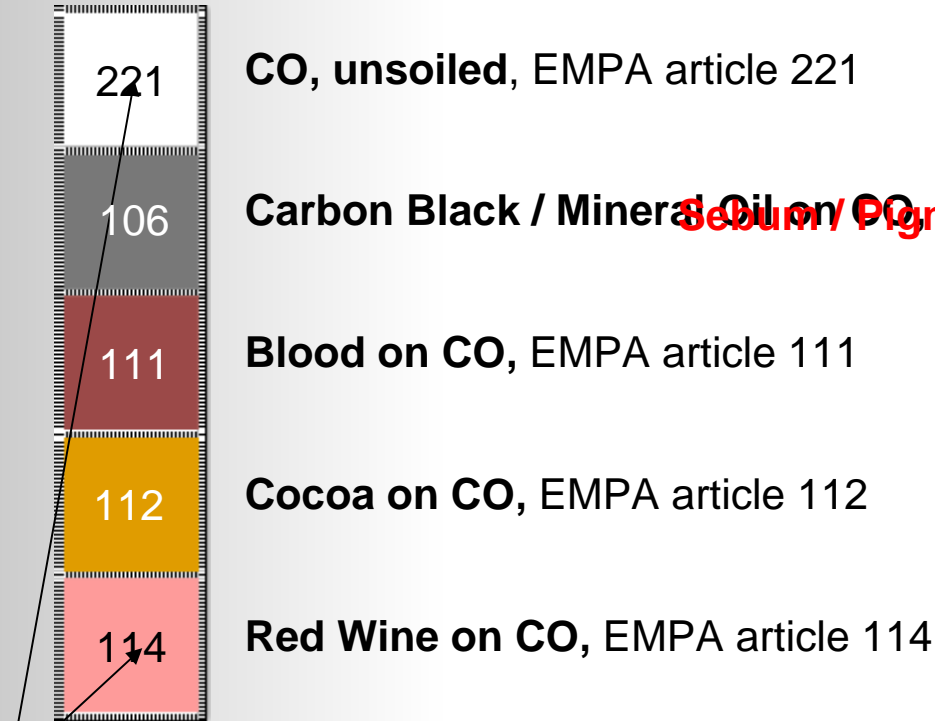


FOM 71CLS
2002 -



Stains strip

Edition 4

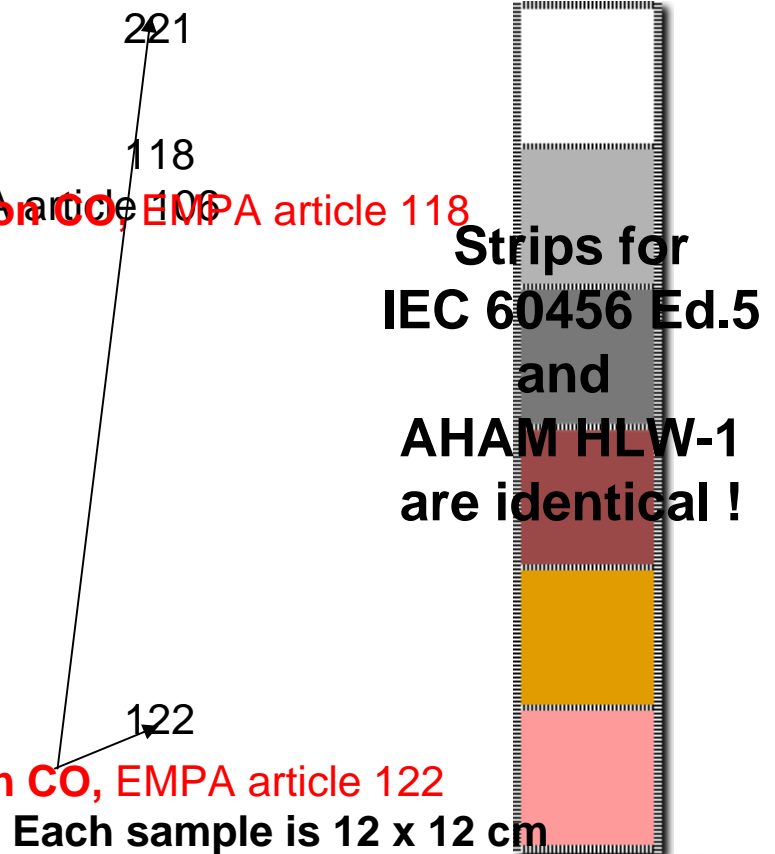


Sebum / Pigment on CO, EMPA article 118

Red Wine (aged) on CO, EMPA article 122

Each sample is 15 x 15 cm

Edition 5



Strips for IEC 60456 Ed.5 and AHAM HLW-1 are identical !

Each sample is 12 x 12 cm

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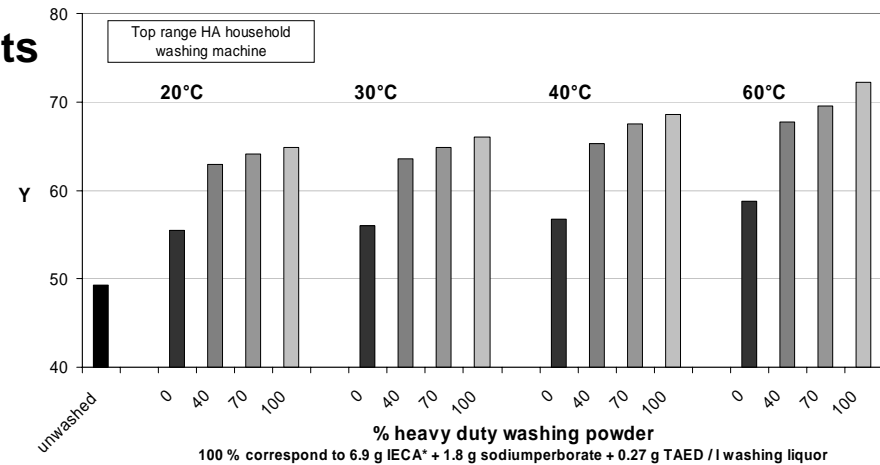
Stain Strips – EMPA 118 Sebum / Pigment

EMPA 118 is sensitive to the amount of detergent.
 It is slightly sensitive to the temperature.
 The stain is nearly insensitive to bleaching agents
 and also nearly insensitive to enzymes.
 EMPA 118 better works at low temperatures.

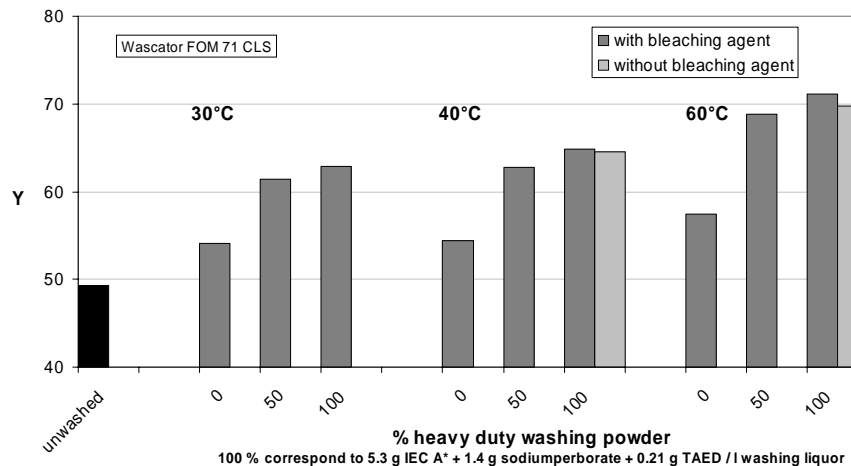


EMPA 118
 Sebum / pigment
 soiling on cotton fabric

General washing behavior



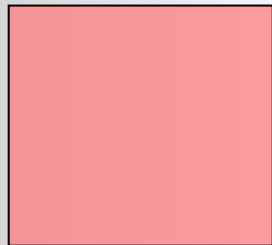
Influence of bleaching agent



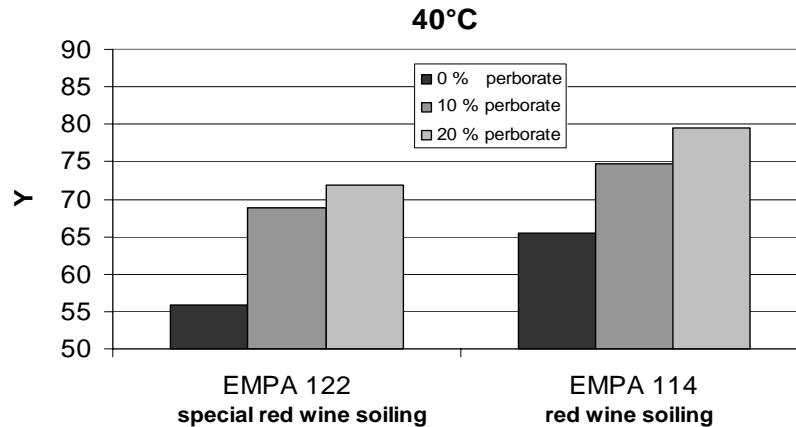
Stain Strips – EMPA 122 Red Wine (aged)

EMPA 122 and EMPA 114 are both sensitive to bleaching agents.

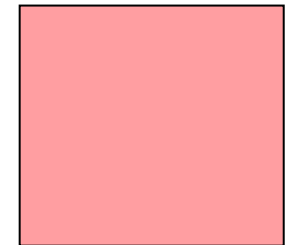
IEC 60456
Edition 5



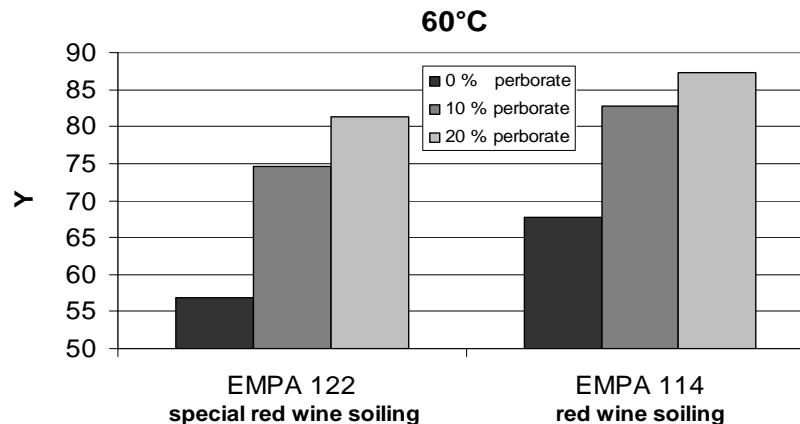
EMPA 122
Aged red wine
soiling on cotton fabric



IEC 60456
Edition 4

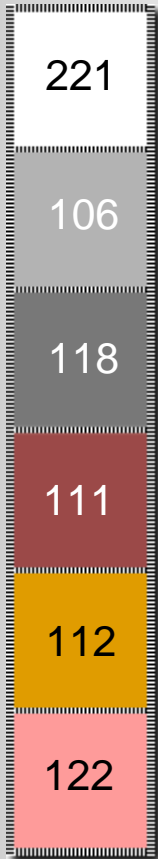


EMPA 114
red wine
soiling on cotton fabric



1. Performance Test - Soil Strips

Certification

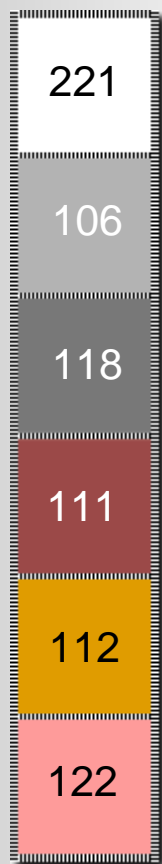


EMPA 108	Serial number:	9
Test strips according to IEC/EN 60456 ed.5		
Limit date for use:	31. December 2007	
Storing conditions:	On receipt of a batch of test strips, the strips must be stored at once in a cool, dark place and kept well packed.	
	Storage temperature: Between -20°C and +5°C.	
	Packaging:	vacuumed
Please note:	Before opening a packet of test strips please allow packet to acclimatise to room temperature.	



Stain Strips

Certification



Tristimulus values Y:

	soiled fabric	cotton 60°C ; 180 g	cotton 40°C ; 180 g	cotton 60°C ; 90 g	ratio 40°C/60°C	ratio 90 g/180 g	defined ratios and tolerances	
							40°C/60°C	90 g/180 g
Sebum/Pigments	49.5 0.3	74.0 0.3	68.3 0.4	71.9 0.4	0.92	0.97	0.93 ± 0.03	0.98 ± 0.03
Carbon blacks	25.5 0.3	44.8 0.6	39.3 0.5	42.6 0.5	0.88	0.95	0.88 ± 0.03	0.94 ± 0.03
Bloods	19.5 0.4	88.1 0.1	79.9 0.5	82.7 0.4	0.91	0.94	0.91 ± 0.04	0.92 ± 0.05
Cocoas	37.9 0.6	72.7 0.6	64.0 1.1	65.0 0.7	0.88	0.89	0.86 ± 0.04	0.88 ± 0.05
Aged Red Wines	45.2 0.2	76.8 0.6	66.7 0.5	68.3 0.2	0.87	0.89	0.86 ± 0.03	0.89 ± 0.03
Sums	177.6 1.0	356.4 1.9	318.2 1.6	330.5 0.7	0.89	0.93	0.89 ± 0.02	0.92 ± 0.02

Washing Conditions:

According to IEC 60456, proposal for Fifth Edition
 Washed with Wascator FOM 71 MP Lab
 Number of cycles: 5
 Detergent IEC-A*. Batch: 275-589
 Dosage: 180 g (60°C and 40°C) and 90 g (60°C)
 Sodium Perborate Batch: SPB4. 175-426
 TAED Batch: 004052
 Water hardness: 2.5mmol/l
 Load: 4/4

Measuring conditions:

Instrument: Spectraflash 500 (Spectral photometer)
 Illuminant / observer: D65 / 10°
 Measuring geometry: d/8°
 Wavelength range: 420 to 750nm
 UV filter: UV barrier at 420nm
 Measuring diameter: 26mm
 Gloss: excluded



Load

Load:

- Revised number of items
 - for small loads (<3kg)
 - large loads (>7 kg)
- Refined procedure for loading and folding covering VA & HA systems



Detergent / Dosage / Water Hardness

Standard detergent A* :

- Currently used in Edition 4 confirmed for next edition.
- Correlation with market detergents established.

Dosage scheme reviewed:

- applicable for HA and VA machines
- soft (2/3 of amount as with hard water)

Water hardness:

- 250 ppm (hard water) and 50 ppm (soft water)



Wool

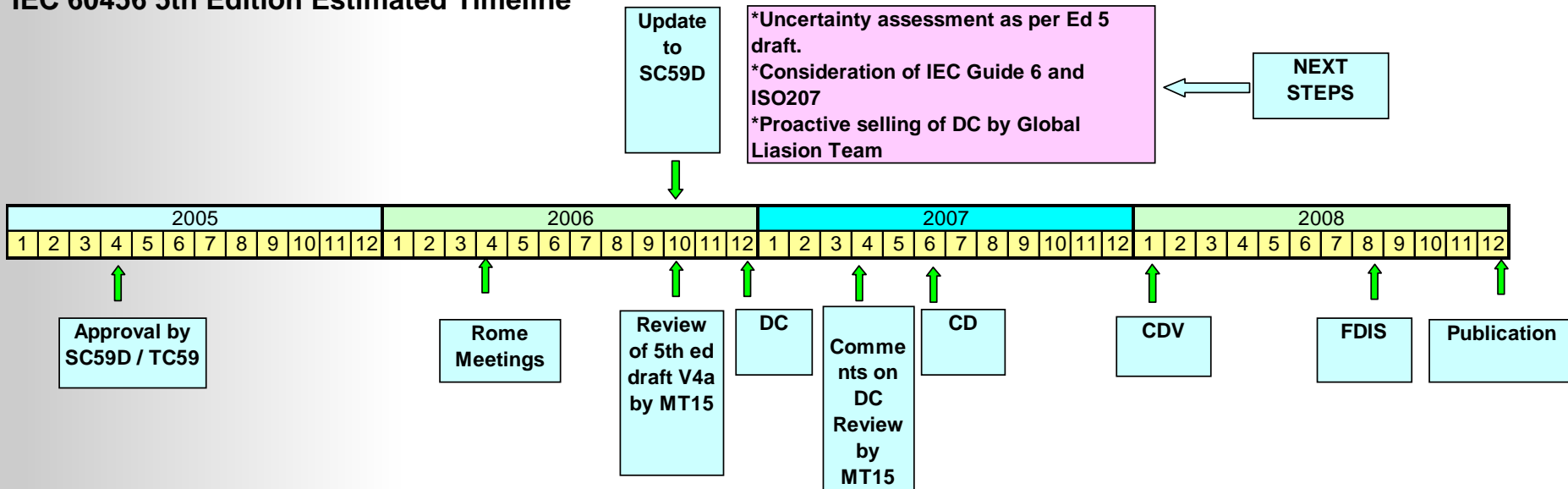
Changes :

- reduction to 4 instead of 6 washes
- Measuring the wool shrinkage after 4 consecutive washes
- Adapted evaluation system



IEC 60456 5th Edition – Estimated Timeline

IEC 60456 5th Edition Estimated Timeline



Elements Deferred to Edition 6+ for Investigation and Research

- *Hygiene*
- *New reference program to reflect easy care wash items.(Development on CLS).*
- *New reference program to reflect Hand wash items.(Development on CLS).*
- *Only CLS as reference system in 6th edition .*
- *Higher spin speed with CLS on cotton reference programs*
- *Wool program - cleaning along with shrinkage*
- *New detergent for wool wash program.*
- *GoA – Gentleness of Action – 6th edition*
- *Rinse method update – Alternatives - Soluble and insoluble*
- *Detergent: New detergent for 6th edition*
- *Potential for reducing test runs to 3 from 5 and impact on uncertainty.*
- *Soil re-deposition*
- *Fabric care (Tangling, wrinkling)*
- *Rated Capacity requirements definition*
- *Inlet Temp*
- *Foreign object handling*
- *Washer imbalance*
- *Spin Speed*





**THANK YOU VERY MUCH
FOR YOUR ATTENTION !!**

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