

Energy Policy - Europe

Making use of a standardised measurement procedure for energy policy

Example: Europe



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- **Practical use of a standard**
 - Tool for energy policy
 - Repeatability and reproducibility of the standard



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Definitions [IEC 61923:1997]

- **repeatability conditions**

conditions where independent test results are obtained with the same method on identical test items in the same laboratory by the same operator using the same equipment within short intervals of time

- **reproducibility conditions**

conditions where test results are obtained with the same method on identical test items in different laboratories with different operators using different equipment



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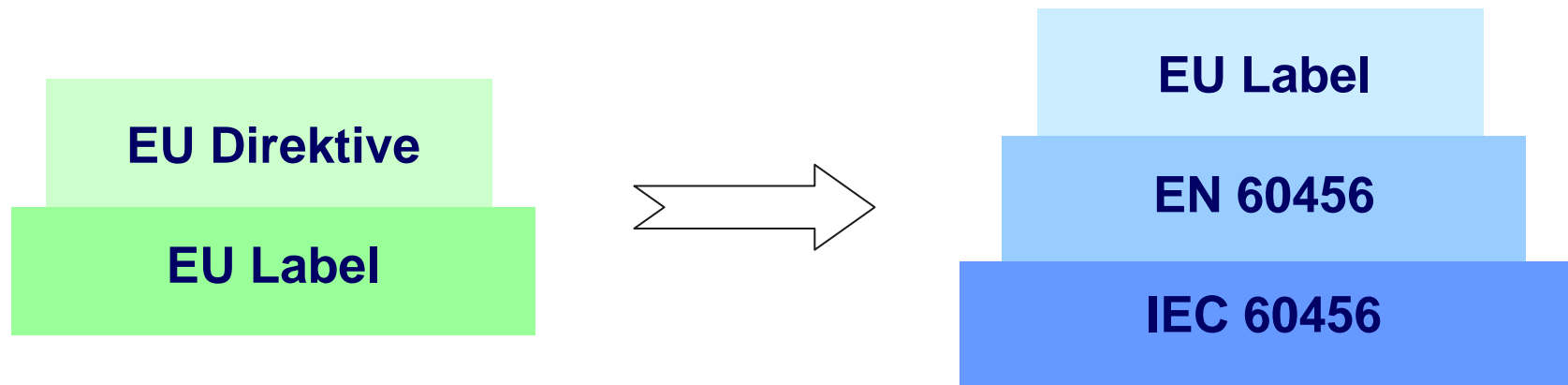
- **Repeatability**
 - Only useful for short term comparisons within one laboratory

- **Reproducibility**
 - Required for comparing results from time to time and from lab to lab
 - Required for objective information on performance or consumption of washing machines



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**Connecting IEC standard and EU energy policy
(agreed policy of 27 European countries)**



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Dresden agreement (1996)



International
Electrotechnical
Commission



IEC 60456



European Committee
for Electrotechnical
Standardization



EN 60456



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EN 60456

- **Based on IEC 60456**
- **„Common modifications“:**
 - Identification of program to test
 - Specification of testing conditions
 - Additional tests
 - Verification procedure
- **Delivers values for Energy Label**





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Information provided:

- Energy efficiency
- Total energy consumption
- Washing performance
- Spin drying performance
- Spin speed
- Capacity
- Water consumption
- Noise (washing and spinning)

Enforced since 1996

Data based on EN 60456

Energy		Washing machine
Manufacturer Model		Model number
More efficient Less efficient		B
Energy consumption kWh/cycle <small>(based on standard test results for 60°C cotton cycle) Actual energy consumption will depend on how the appliance is used</small>		1.75
Washing performance <small>A: higher G: lower</small>		A B C D E F G
Spin drying performance <small>A: higher G: lower Spin speed (rpm)</small>		A B C D E F G 1400
Capacity (cotton) kg Water consumption		5.0 5.5
Noise (dB(A) re 1 pW) Washing Spinning		5.2 7.6
<small>Further information contained in product brochure</small>		 

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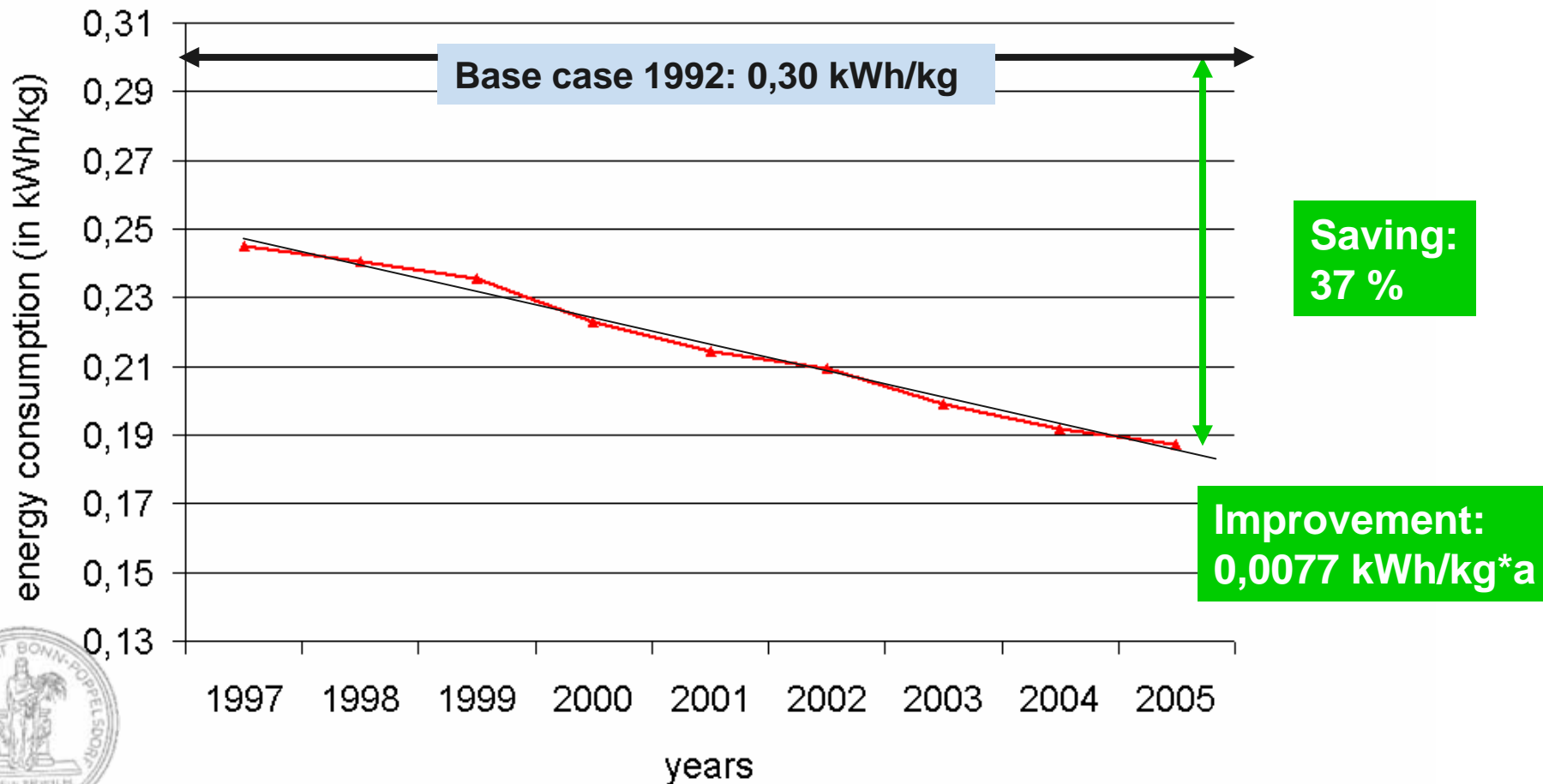
Washing machines development

Based on model database
1997 - 2005



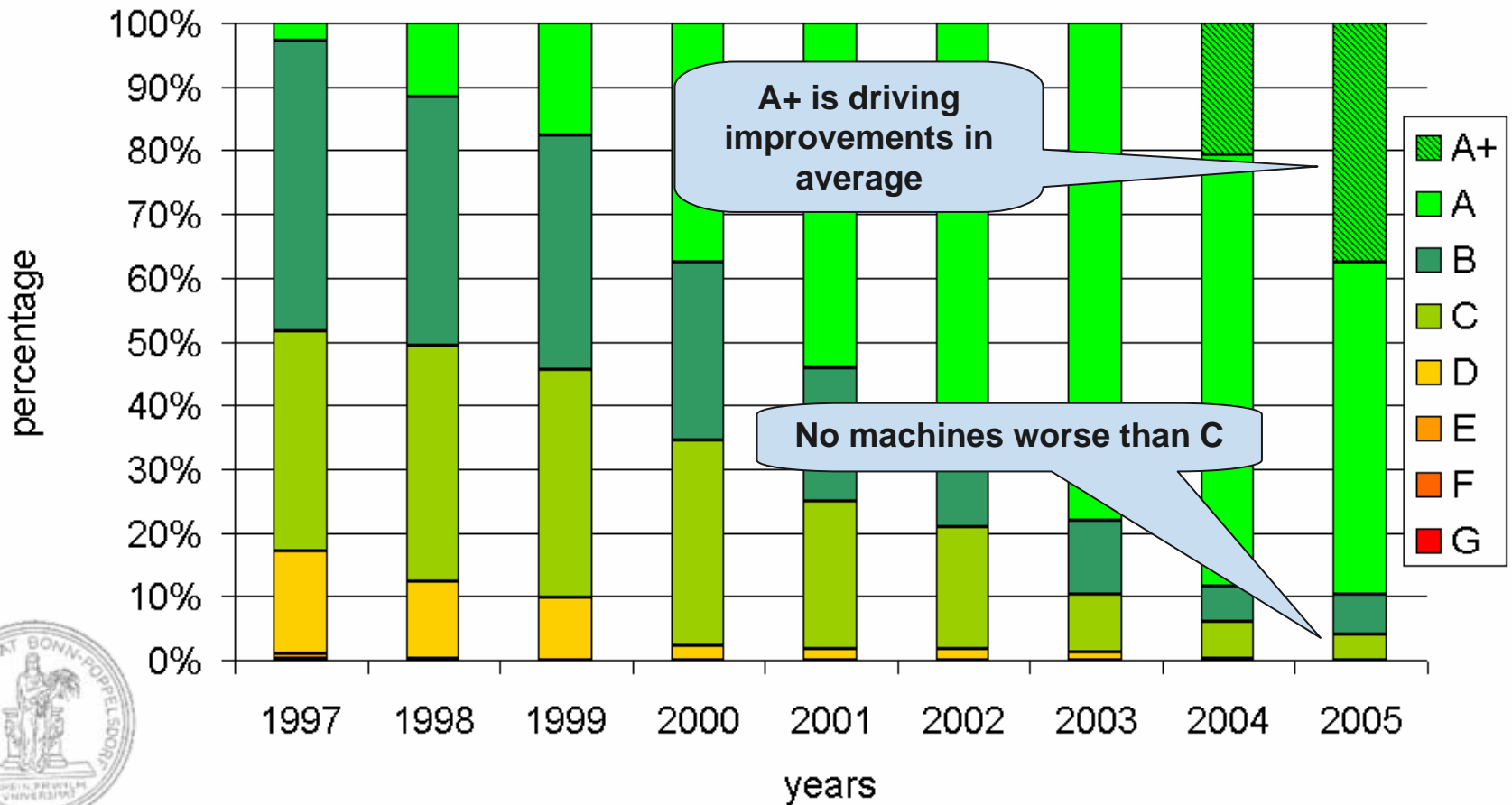
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Washing machine: Average specific energy consumption per loading



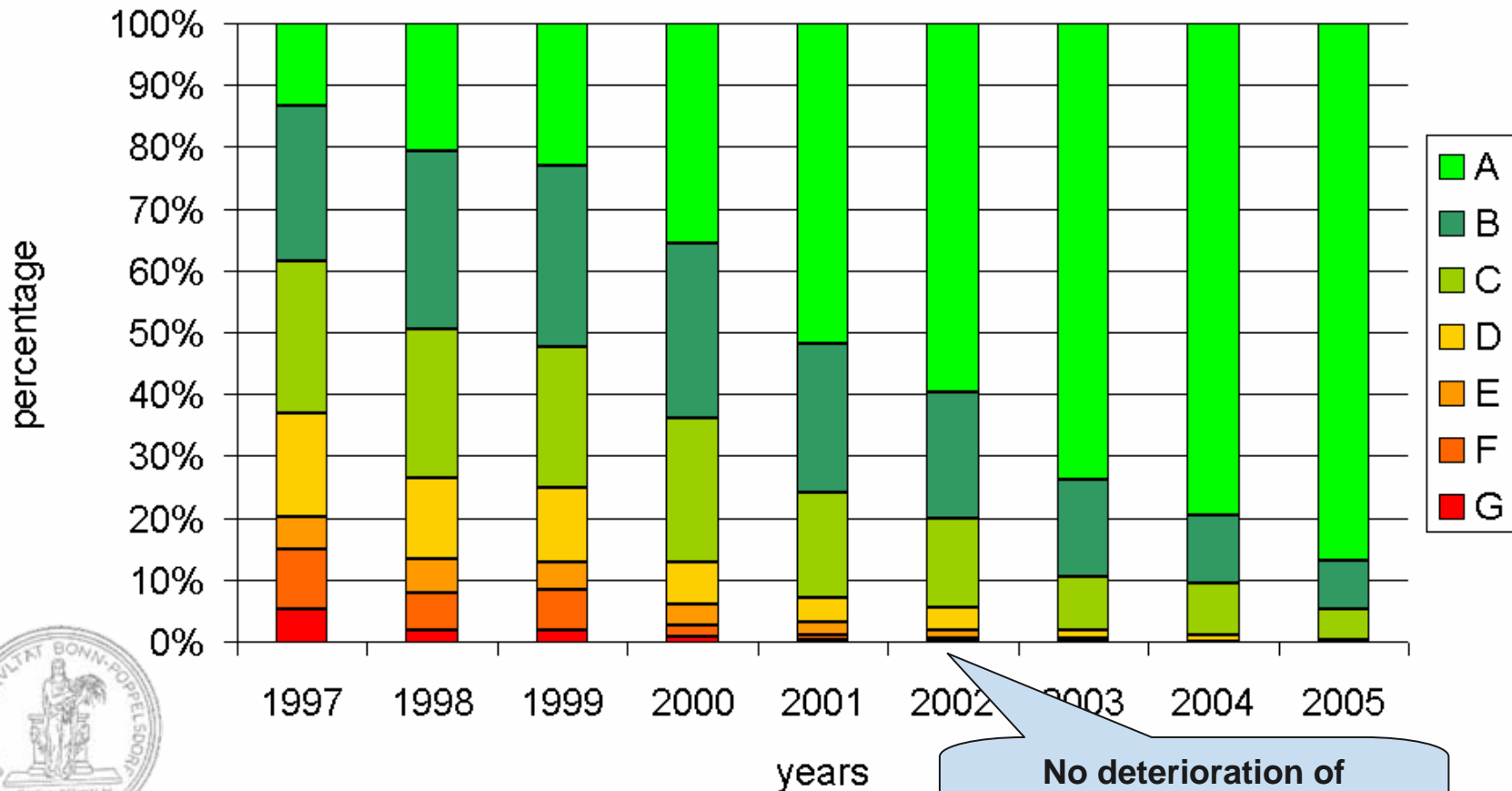
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Washing machines: Energy Efficiency Class 1997 - 2005



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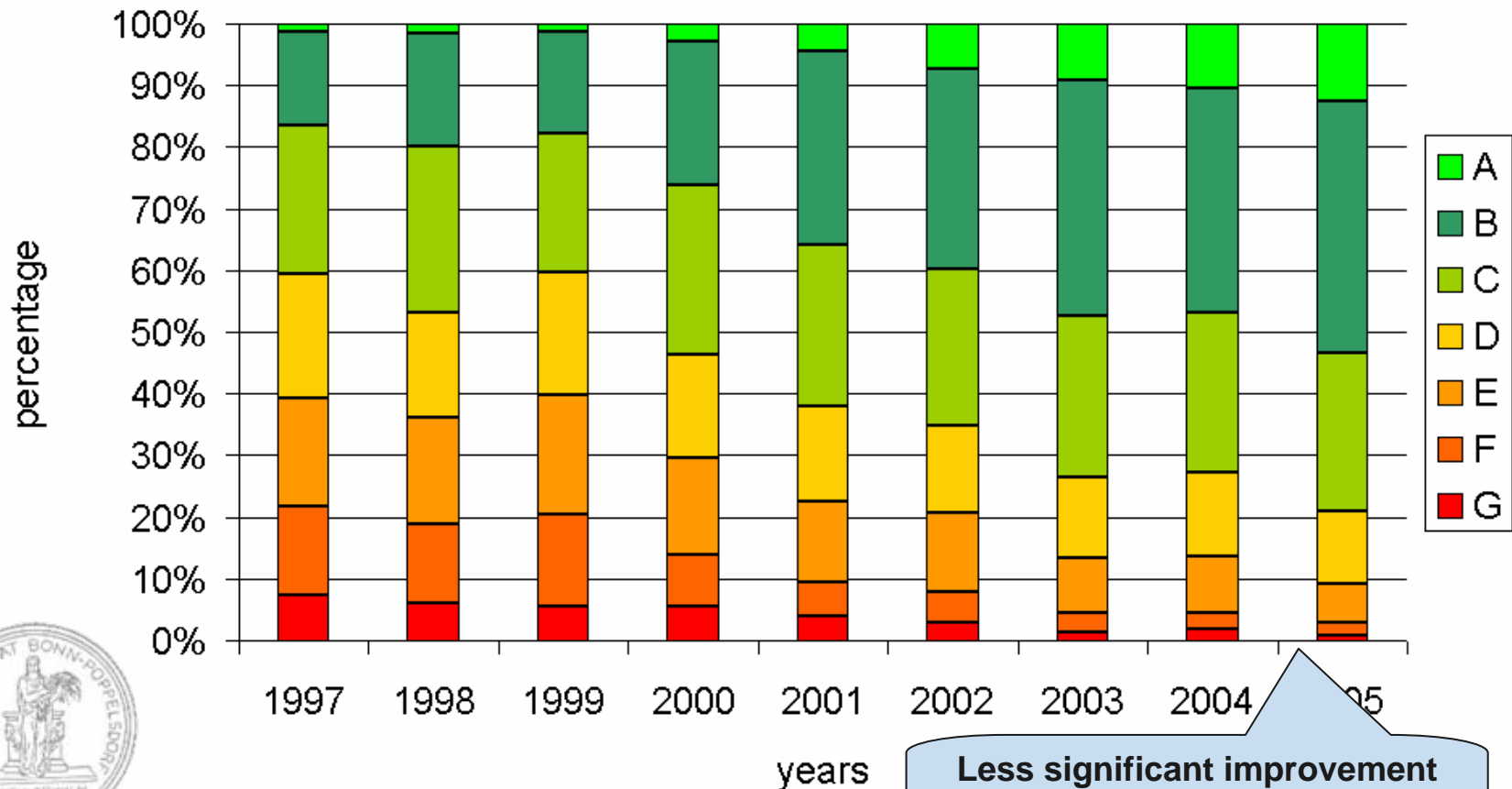
Washing machines: Washing Performance Class 1997 - 2005



No deterioration of washing performance

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Washing machines: Drying Efficiency Class 1997 - 2005

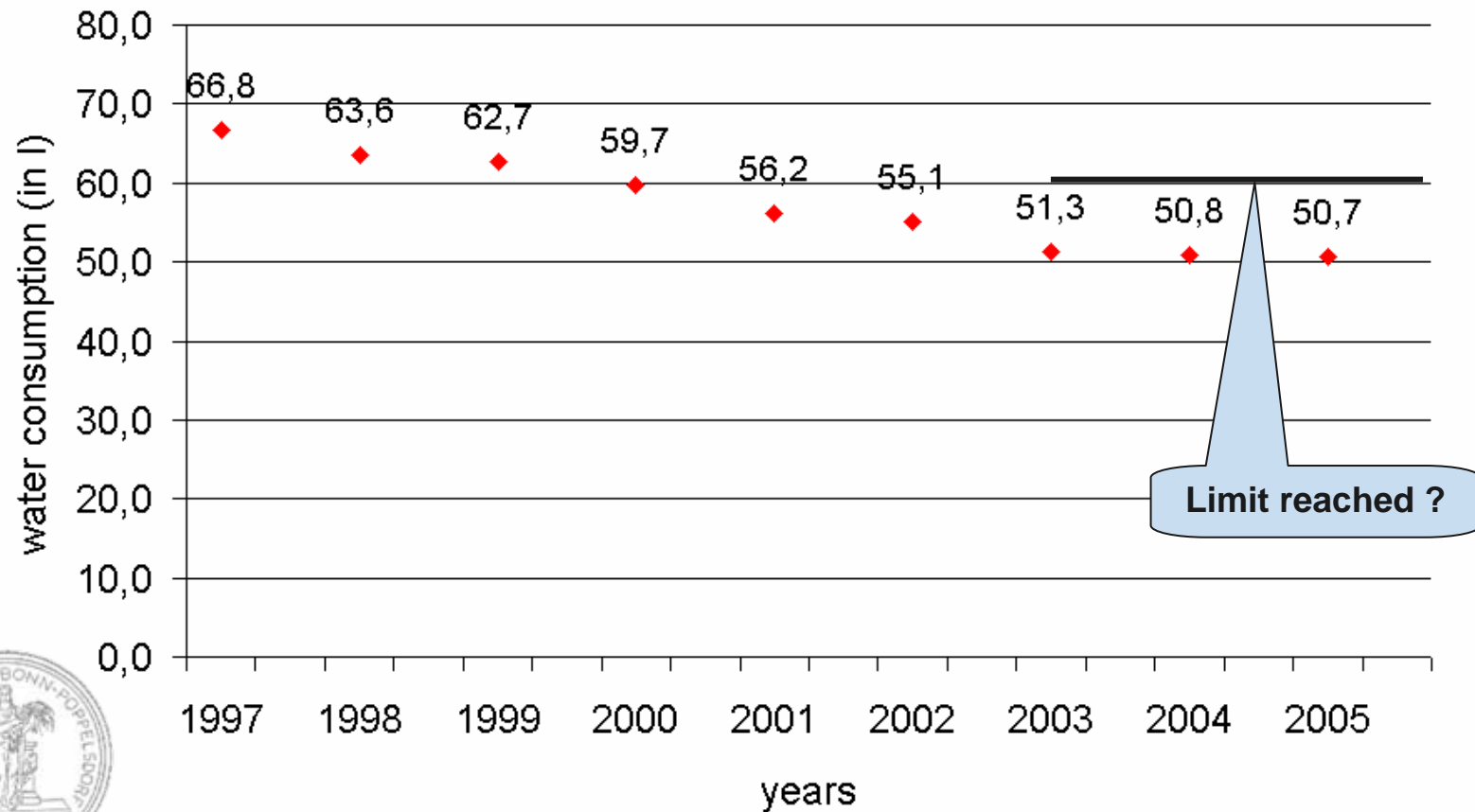


Less significant improvement
- all 7 classes still used



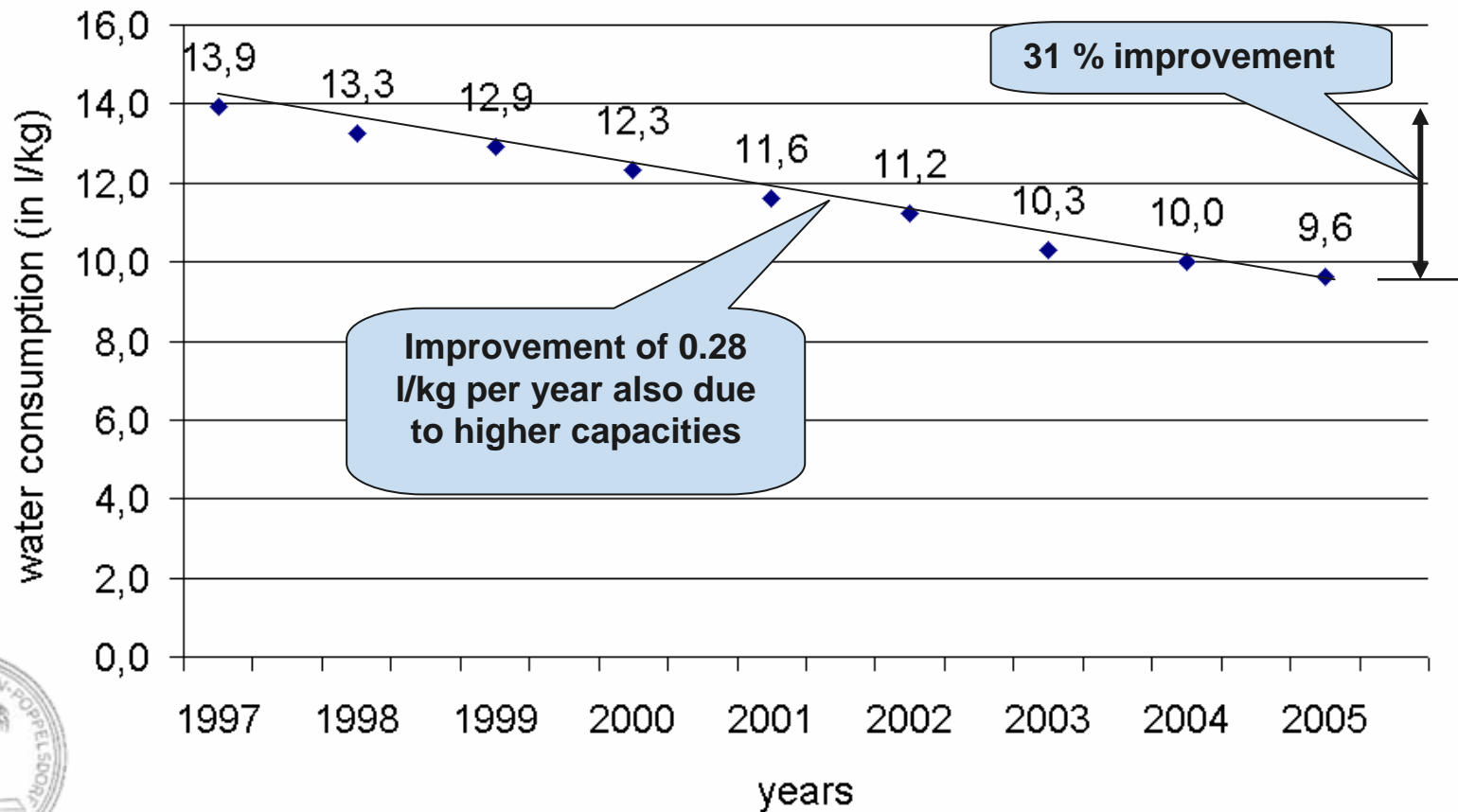
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Washing machine: Average - Water consumption in l



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Washing machine: Average - Water consumption per kg



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Summary

- **A good reproducibility of a measurement standard is needed to make use of it outside one single laboratory**
- **For HA machines IEC 60456 (4th ed.) provides accurate and consumer relevant results allowing to compare different washing machines**
- **This is successfully used to set up policies to improve energy efficiency of washing machines**



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Thank you for your attention

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