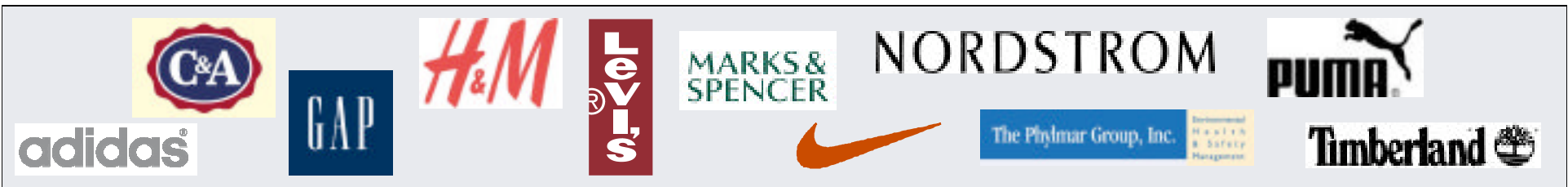


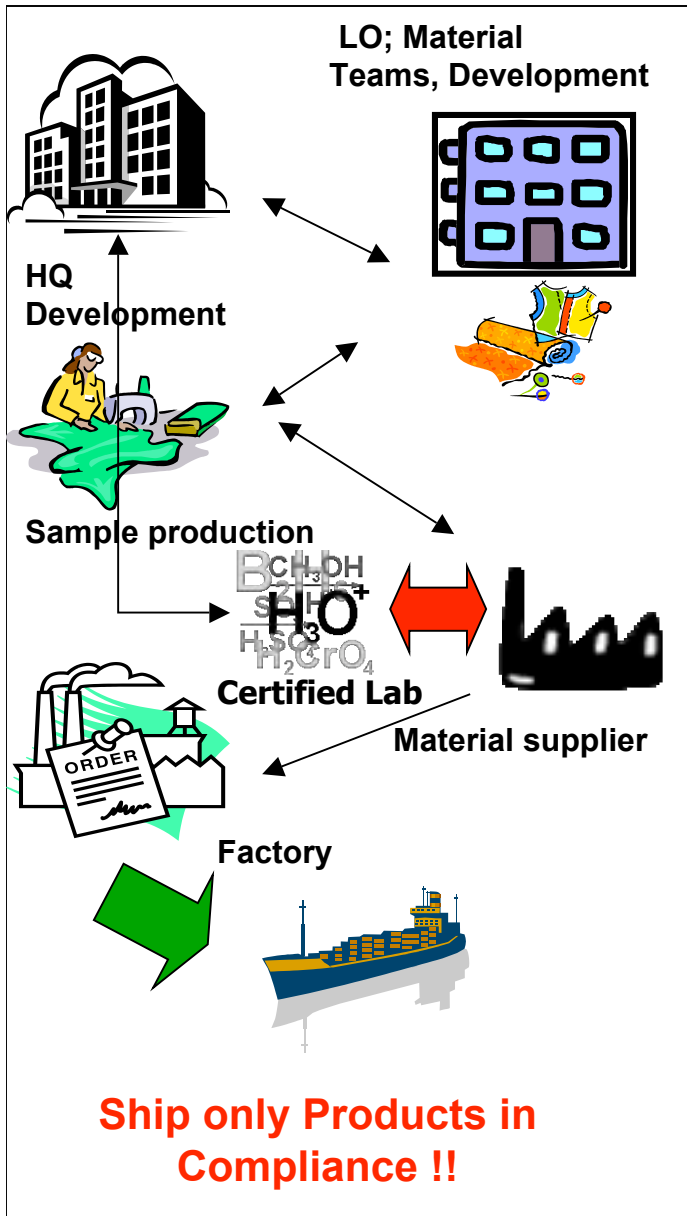
TESTING

Reiner Hengstmann

Social & Environmental
Affairs

PUMA AG





TESTING

GENERAL PROCEDURE

- Get certificates or follow the testing procedure
- All materials have to be verified
 - Use accredited labs
- Company RSL must be fulfilled
 - Ship only products in compliance with company RSLs!

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MARKS & SPENCER



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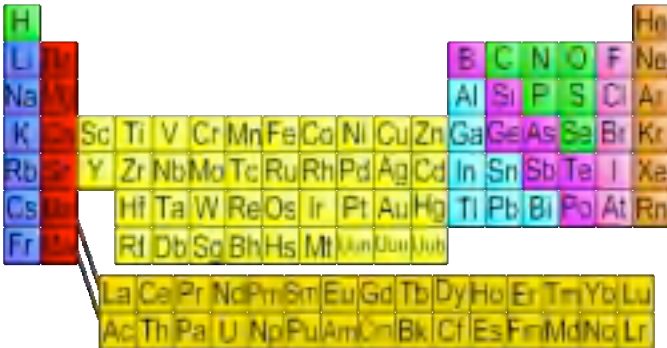




TESTING GUIDANCE

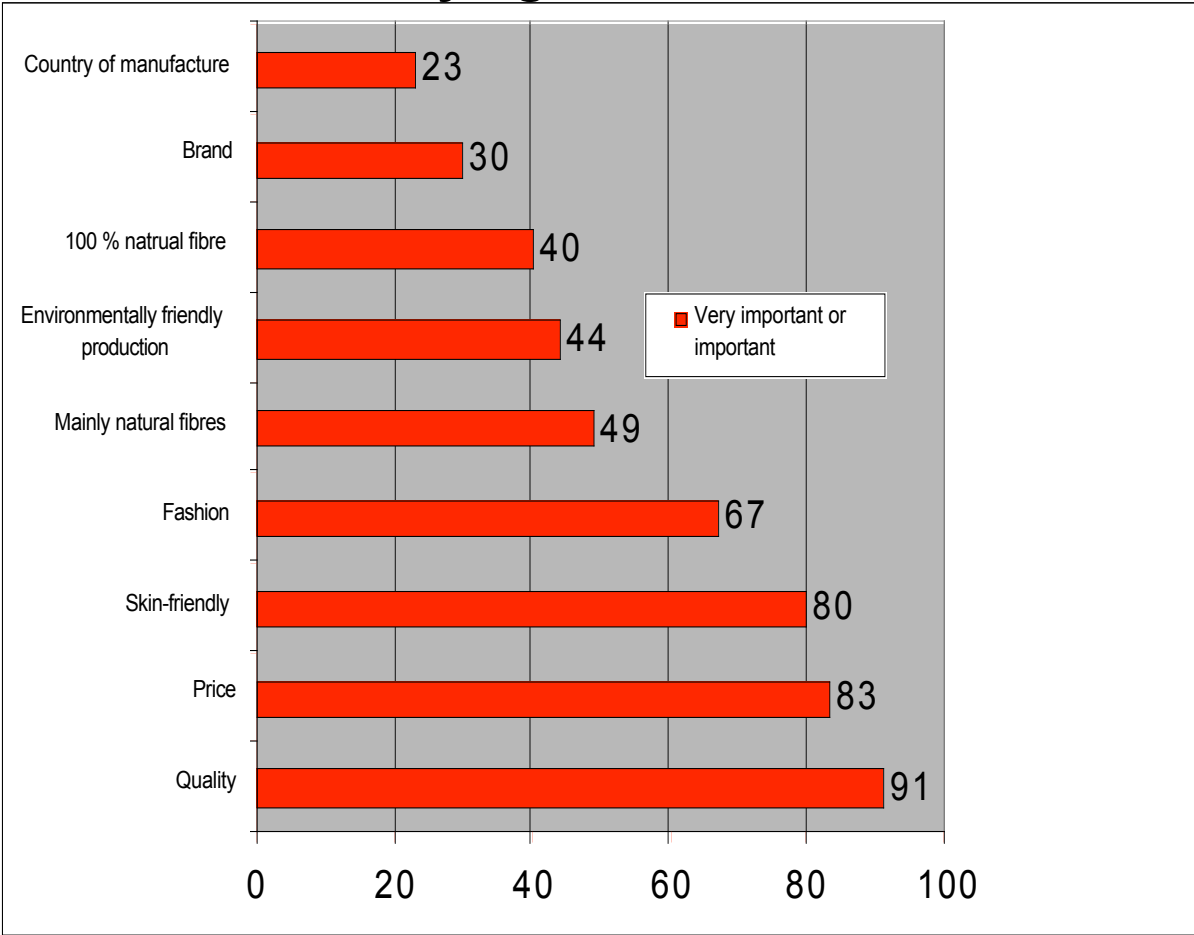
All materials which are used in production must be compliant

- Dark colors present a higher risk of failure
- Whites randomly for certain parameters
- New and not yet known materials/compositions
- Only production related material and no samples



TESTING

What is the customer preference for buying textiles?





TESTING

WHY IS IT IMPORTANT TO TEST?

- Consumer safety
- Product safety
- Production safety
- Environment safety
- Workplace and worker safety

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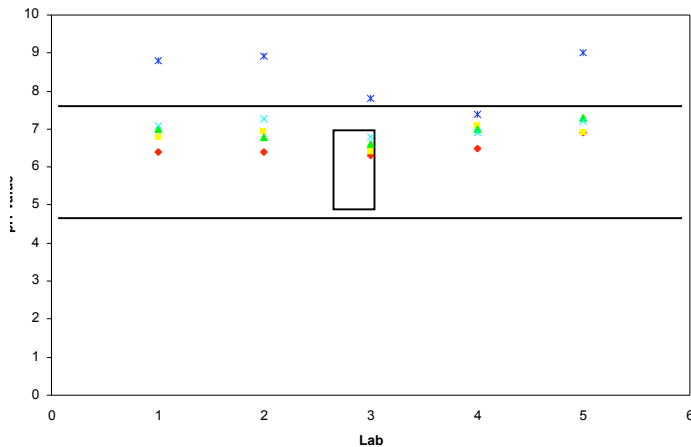
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TESTING

pH round robin test



5 labs
only one passed

WHO SHOULD DO THE TESTING?

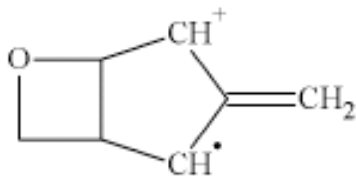
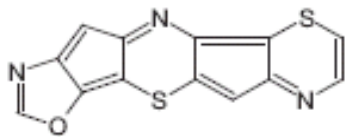
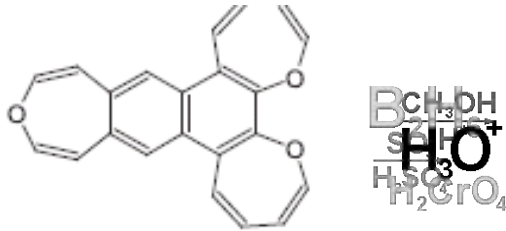
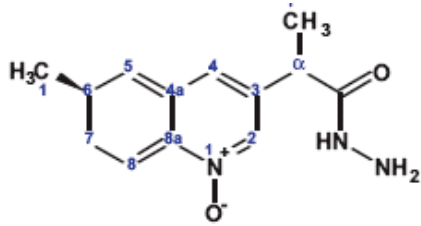
- Labs with an international reputation
- Labs which are accredited
- Labs which participate frequently in round robin testing



TESTING

WHEN AND WHAT TO TEST?

- Follow company RSL requirements
- Oeko-Tex 100 Standard, if required by customer



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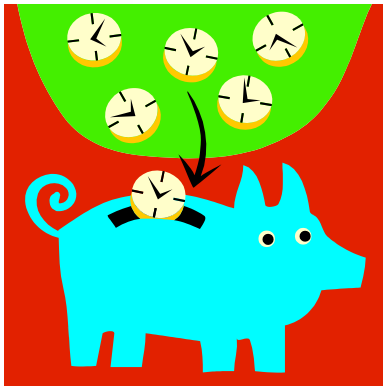


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TESTING GUIDANCE



- **Have a standard procedure**
- **Test every season or every new material, as required by customer**
- **Be proactive to avoid wasting money**
- **Make testing as efficient as possible**

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TESTING GUIDANCE



Keep the balance

- Use company specified test methods. If none specified, use internationally recognized test methods.
- Make sure results will be globally comparable.
- In case of questions, do not act on your own. Contact your customer.



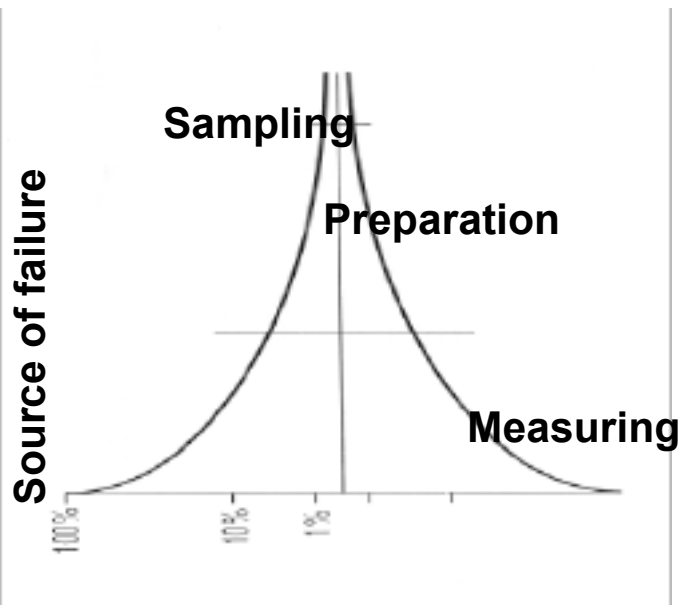
TESTING GUIDANCE



- The testing procedure starts with the sampling

- Poor sampling may cause failures, delays, and increase costs

- Every test result is only as good as the technique of taking the sample



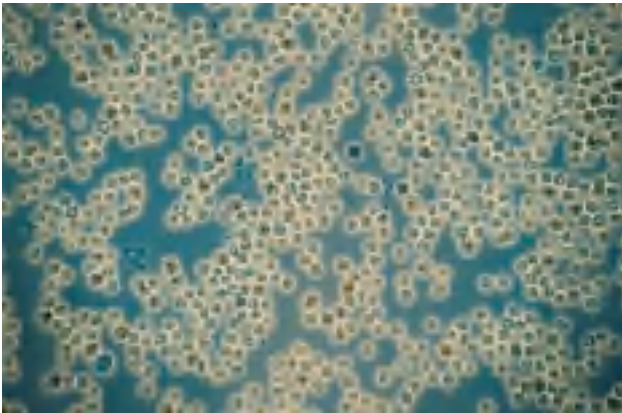
$$\text{— Total} = \text{— Sampling} + \text{— Preparation} + \text{— Measuring}$$



TESTING

Example:

- Supplier collected a fresh water sample
- Sent for testing according to potable water guidance
- Failed because it contained 3,000 Coliform bacteria which may lead to serious health effects
- Could have led to needless investment to improve water supply
- Finally found out that the sampling technique was wrong, correct sampling and retesting resulted in acceptable results



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TESTING GUIDANCE

Before you do the sampling of material, please ask:

- **HOW?** Should I take the sample
- **FROM WHERE?** Should I take the sample
- **HOW MUCH?** Should I take
- **HOW?** Should I prepare the sample
- **HOW?** Should I send the sample

