

“Highly accelerated degradation or test tailoring”

A dialog presentation by

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The title for our
presentation
might sound provocative.



not to refuse the value of new accelerated
test methods,
but might be that we could put
“the importance of the time factor”

not only to **test results in scientific work**

but also in **supplier - customer relation**

for

environmental, quality and functional tests

20 years back we learned:

- Tailoring a product to its **life profile environment**

is

- Developing a product in function of the **life profile environment**
to which the realized product will be subjected

Life cycle profile analyses

with service functions and associated performances

Situation characterization

by environmental factors

Environmental design

based on environmental validation

”Experience of tailoring”

The customer expresses his “need” in a technical specification (service to be furnished by the product and expected life profile)

The supplier responds by design and validation actions.(checking e.g. by numeric simulation by experience - failure during use – feed back from the field etc., trying the justification of the spec.).

The validation action is a test

The tests severity is limited by:

- **The state of the art as to simulation in the considered environment**
- **Existing standard procedures**
- **Lack of programs for numeric simulation and thus less possibility for virtual tests.**
- **Resistance limit variability depending on the number of product specimen (compare safety factor)**
- **Limitations in the test facilities**
- **Combining environmental agents**

Highly accelerated test and Robustness

What is *ROBUSTNESS*

Robustness:

Each exemplary of the realized product should keep an optimal level all along its life in the specified normal and extreme environment.

Thus

WHAT ACTIONS?

Actions:

- **Appropriate tailoring** (including particular uncertainty factors when transforming specified environments into extreme environments)
- **Reduce product sensitivity** to weariness (observe materials degradation and ageing)
- **Control of the manufacturing process**

and so

We meet **the customer’s specification** (“needs”) for specified performances in the specified normal and extreme environment

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CEEES, Bryssel 18 Feb 2005

”Experience of tailoring”



But

Why should we test in a way whereby we reduce the time factor to such an extreme that we do not test the normal and extreme environment but an impossible extreme by combining unscientifically environmental agents, causing unrealistic degradation and weariness.

We must stick to the requirement for repeatability and be able in our test procedures to generate repeatable results which is necessary not only in scientific research but also in the relation between supplier and customer who should be able to surely rely on our test results.

We have respect for highly accelerated tests and the bath tube curve but still we might pronounce:

Don't be too sure.

T a i l o r i n g !