

Definition of extreme conditions and procedure of testing

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Change record

Issue/revision	date	Pages	Summary of changes
draft		Na	na

1 Identification of extreme conditions relevant for wind turbines

Together with manufacturers and users the extreme conditions are identified. Especially the erection of wind turbines in hot regions (deserts), in arctic regions and in offshore positions necessitates a deeper understanding of the influences from environments. Temperature fluctuations, influences from humidity, chemical attacks, erosion and the combined effects are expected to be the main degradation factors.

Four environmental conditions are selected. The effect of these on the mechanical properties of both, reference and alternative materials will be experimentally investigated and compared. The work package, WP8, deals with characterization of reference material. The selected environmental conditions are listed in Table 1.

Table 1.

Extreme Conditions		
#	Environmental conditions	Remarks
1	Ambient room conditions	Reference
2	Temperature T=+60C	Extreme
3	Temperature T=-40C	Extreme
4	Humidity*	Extreme

* - Humidity – Test samples will be immersed in water and kept for 6 month and 12 month at ambient room temperature. The actual water take up will be measured by weight. The chemical composition of water and experimental procedure are according to standard ASTM D 1141-98, "Standard Practice for Substitute Ocean Water".

2 Procedures for testing

Each of the defined extreme conditions obey the same test program as it is given in report "Test plan" and the same given in DPA as well.