

NoICE

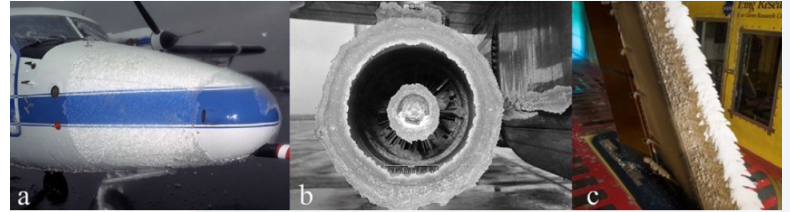
Assessment of new material and coating concepts
combining erosion resistance and ice-phobic
behaviour

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Kurzdarstellung der Konsortialpartner



- RHP Technology GmbH is a solution provider for the development and manufacturing of customized materials.
- We use various powder metallurgical processing for the manufacturing including additive manufacturing techniques
- We have experience in a large variety of materials including metals, ceramics and composite materials



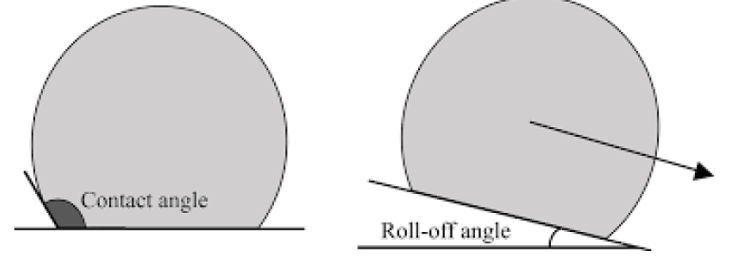
Ziel des Projekts

- Assessment and development of **new materials** and **coating concepts** for an **erosion resistant** coating combined with **ice-phobic behaviour**
- **Prevention of ice accretion**
- **Assessment of performance** of rather “unconventional” materials with respect to ice-phobic behaviour => only limited information available
- Goal to identify data for these material families
- **Anti-icing vs. de-icing**
- Sustainable materials with **reduced impact on environment**

Bulk Metallic Glasses
Quasicrystals
High Entropy Alloys
Metal Matrix Composites
Rare Earth Oxides
MAX phases

Arbeitsplan/Zeitplan/Umsetzung

- Duration: 12 months
- Preparation of materials by **powder metallurgical route** as well as **plasma deposition**
- *Screening of bulk material candidates for anti-ice behaviour*
- *Tailoring of anti-ice performance by optimization of composition*
- *Study of influence of surface treatment (influence of roughness and texture)*
- *Transfer of selected materials into coatings using plasma based powder coating processes*
- Investigation of hydrophobic/ice phobic properties: Hydrophobic: CA $>90^\circ$;
Superhydrophobic: CA $>150^\circ$ and RoA $<10^\circ$



GOALS

- ✓ Detachment/removal of water droplets
- ✓ Prevention/delay of ice formation
- ✓ Reduction of ice adhesion

Angestrebte Verwertung

- Identification of suitable candidate materials for subsequent transfer to coating processes (plasma based processes)
- Assess the potential for IP protection => identify new material systems for icephobic behaviour
- Generate data set for different materials allowing to establish large area coating demonstration in a subsequent project

Kontakte

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