ISO 29461 Draft: Air intake filter systems for rotary machinery - Part 5: Test methods for static filter systems in marine and offshore environments

Measurements

European Turbine Network

Air Filtration Working Group

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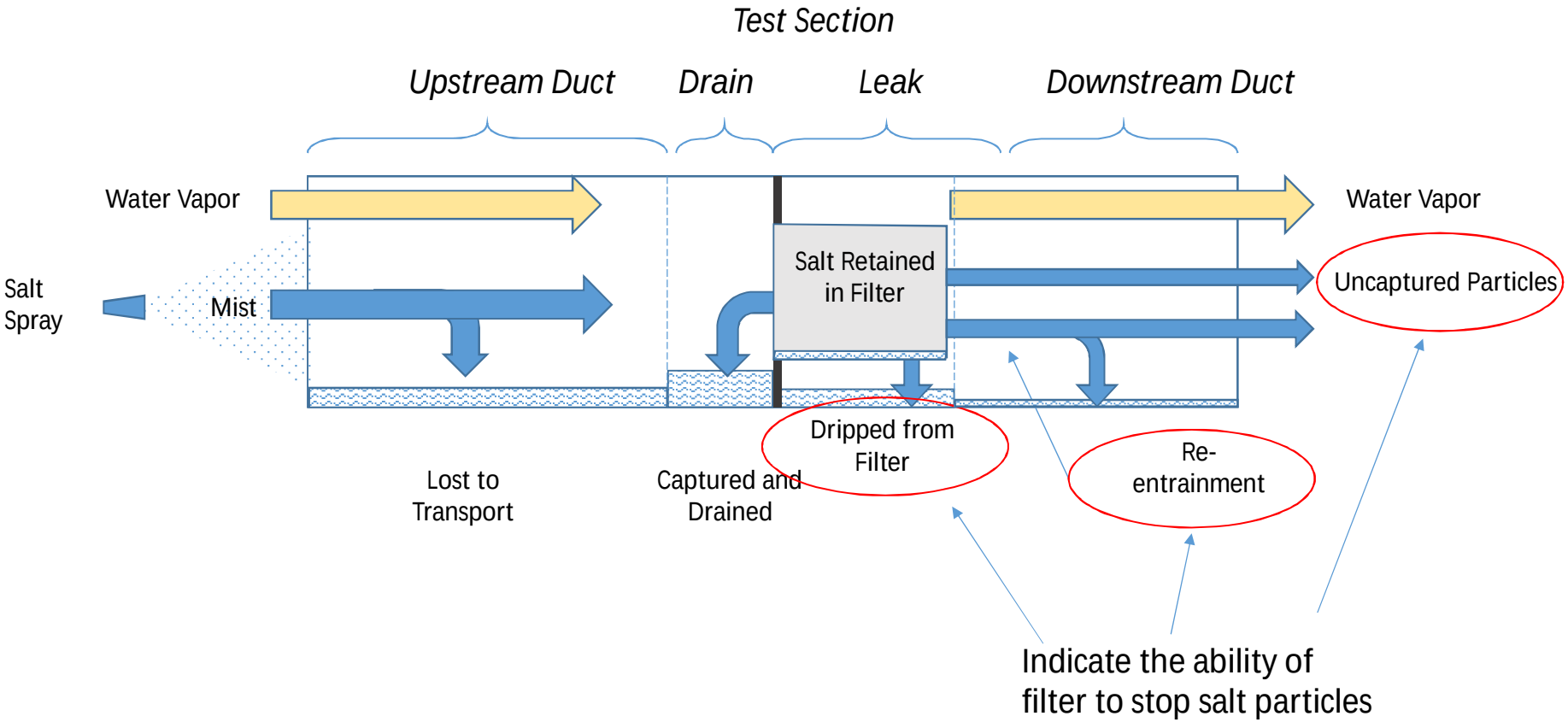
Purpose of Meeting

- Define
  - Scope
  - Identify options for measuring salts
  - Timeline and Deliverables
  - Stakeholders
  - Members of team

Filter Performance Measures

- Salt Retention (scope)
  - Amt of salt distributed in upstream/downstream test duct and filter
  - Amt of salt captured by the filter
  - Amt of salt passed thru the filter
  - Size of salt particles
- Pressure Drop
  - Pressure drop of filter during wet/dry cycles
- Filtration Efficiency
  - Filter collection efficiency when dry/wet

Salt Retention Test



Distribution of Salt

- Upstream duct prior to reaching filter
- Drain section: water captured by filter and drained upstream
- Leak section: water leaked thru seal, filter media, potting, etc
- Downstream duct: re-entrained liquid particles
- Downstream duct: small droplets not captured by filter

How to quantify liquid salt particles in air?

- Sampling
- Conditioning
- Real-time test readings
  - Sodium flame photometer
  - Particle counters
  - Electrical Low Pressure Impactor
- Non-realtime test methods
  - Liquid impinger, impactor, SEM

Research Topic

Determining Salt Concentration

- Liquid
  - Titration with silver nitrate
  - Liquid ion chromatography (LC)
  - Sodium flame photometer
  - ICP-OES/ICP-MS
  - Conductivity
  - ?
- Aerosol
  - Sodium flame photometer
  - ?

Deliverables & Timeline

Complete By

- Phase I: survey available technology to measure salt
  - Water
  - Air
- Phase II: Present findings to stakeholders. Select technology to evaluate
- Phase III: Complete research and meet with core group during next ETN meeting on proposal