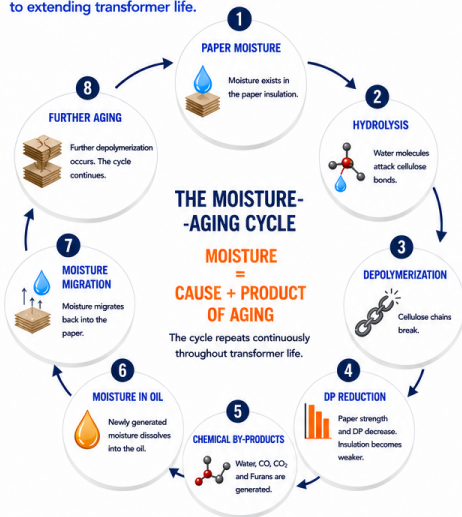


“Moisture is not only an ingress problem. Moisture is also an aging by-product.”

## THE TRANSFORMER MOISTURE CYCLE: WHY AGING CREATES MORE AGING

Inside every transformer, moisture and aging are linked in a never-ending cycle. Understanding this cycle is the first step to extending transformer life.



### THE AGING CHEMISTRY

During depolymerization, the following are produced:

- H<sub>2</sub>O (WATER)**  
Generated from cellulose chain breakage.
- CO / CO<sub>2</sub>**  
By-products of oxidation reactions.
- FURANS (2-FAL, 5-HMF, etc.)**  
Indicators of cellulose degradation.
- ACIDS**  
Increase the rate of cellulose aging.



#### DryTrans MMS90

Advanced online moisture management system for continuous dehydration and protection.



#### DryTrans TRAM90

High performance moisture management system for continuous moisture control and extended transformer life.

#### ⚠ THE REALITY

- Most failures are not caused by sudden faults.
- They are the result of slow insulation degradation driven by moisture, thermal stress and chemical aging.
- Moisture stored in paper (>95% of total moisture) keeps returning to the oil until a new equilibrium is reached.
- Oil filtration removes moisture from oil. It does not stop moisture generated by aging paper.

#### 🛡 THE SOLUTION

When moisture is identified as the dominant driver, the strategy must shift from periodic testing & filtration to:



#### CONTINUOUS MOISTURE MANAGEMENT

Break the cycle. Protect the insulation. Extend transformer life.

### BENEFITS OF CONTINUOUS MOISTURE MANAGEMENT



Maintain Low Moisture Level



Slower Aging & Depolymerization



Lower Furan Generation



Higher Reliability & Availability



Extended Transformer Life



Better ROI on Assets

### DRYTRANS SOLUTIONS

Our online moisture management systems remove moisture continuously, protect insulation, and interrupt the moisture-aging cycle at the source.

- ✓ Continuous Dehydration
- ✓ Closed Loop, No Ingress
- ✓ No Consumables
- ✓ Online & Unattended
- ✓ Proven in Global Installations

### LET'S BREAK THE CYCLE TOGETHER

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