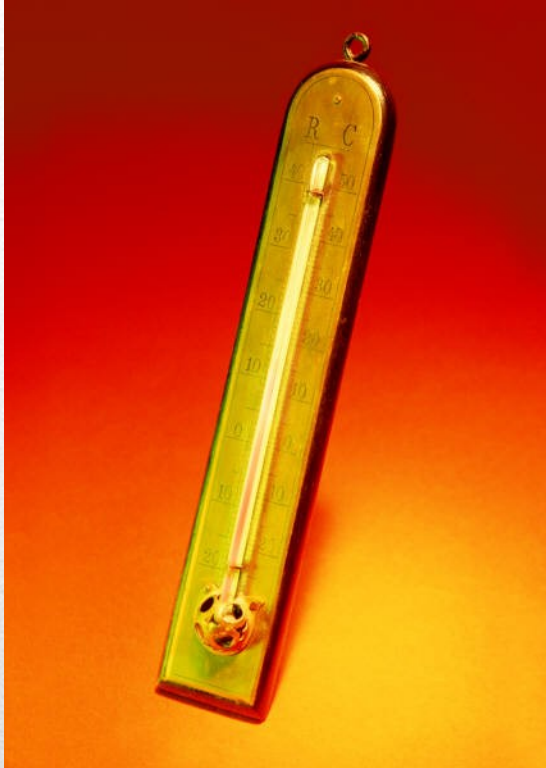




Metrics

what are metrics?

why are metrics important?



**standard of
measurement**

98.6°F



familiar standards



collections

people

money



balance needs



Measure of the motion of molecules in a material expressed in degrees Fahrenheit or Celsius

temperature

- for paper based collections, 65°F - 68°F
- colder is better

temperature standards

- Heat accelerates deterioration: the rate of most chemical reactions, including deterioration, is approximately doubled with each increase in temperature of 18°F (10°C).
- In the case of cellulose, each 9°F increase in temperature doubles the rate of deterioration.

heat warning

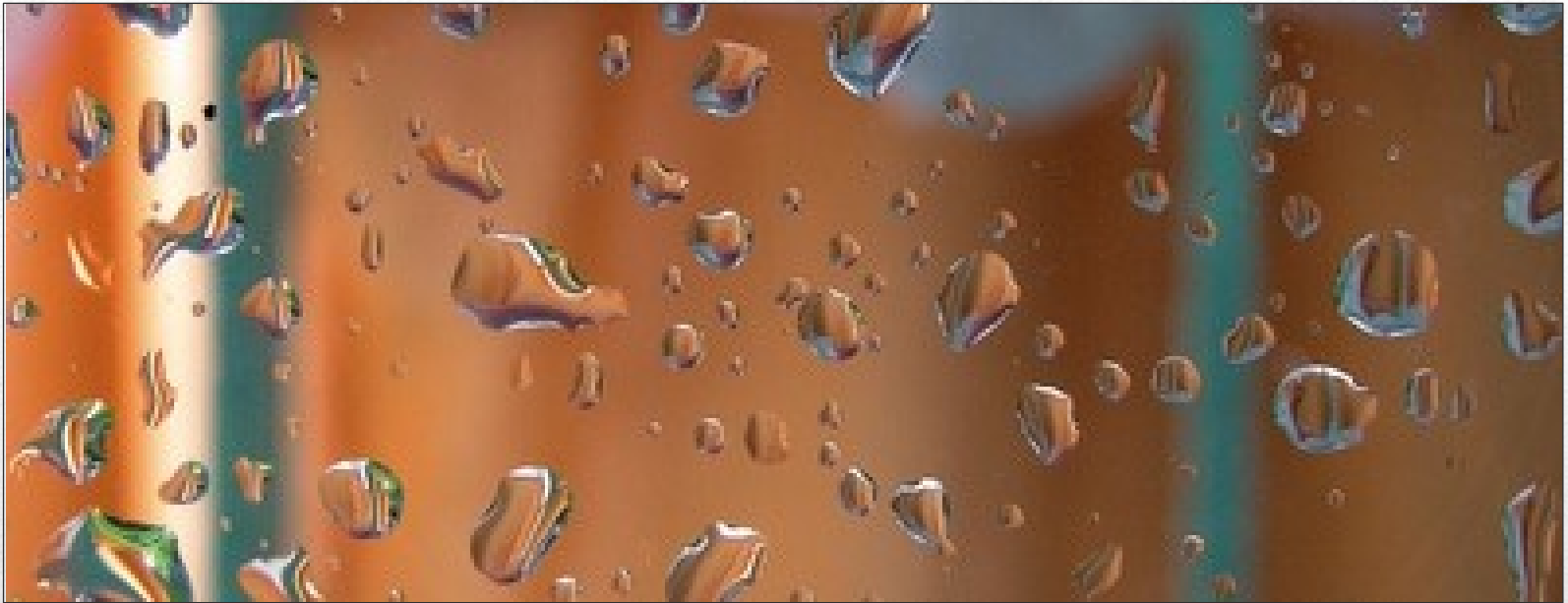


relationship between volume of air and amount of water it holds at a given temperature, expressed as a percentage

relative humidity (RH)

- Paper - - 30% RH to 50% RH
- Parchment/vellum - - 30% RH to 50% RH
- Photographs - - 30% to 50% RH

RH standards



Temperature at which water begins to condense out of the air, expressed in degrees Fahrenheit or Celsius

dew point

RH

- relative saturation of the air (percentage)

dew point

- absolute moisture content of the air

difference

temperature

RH

dew point



relationship?



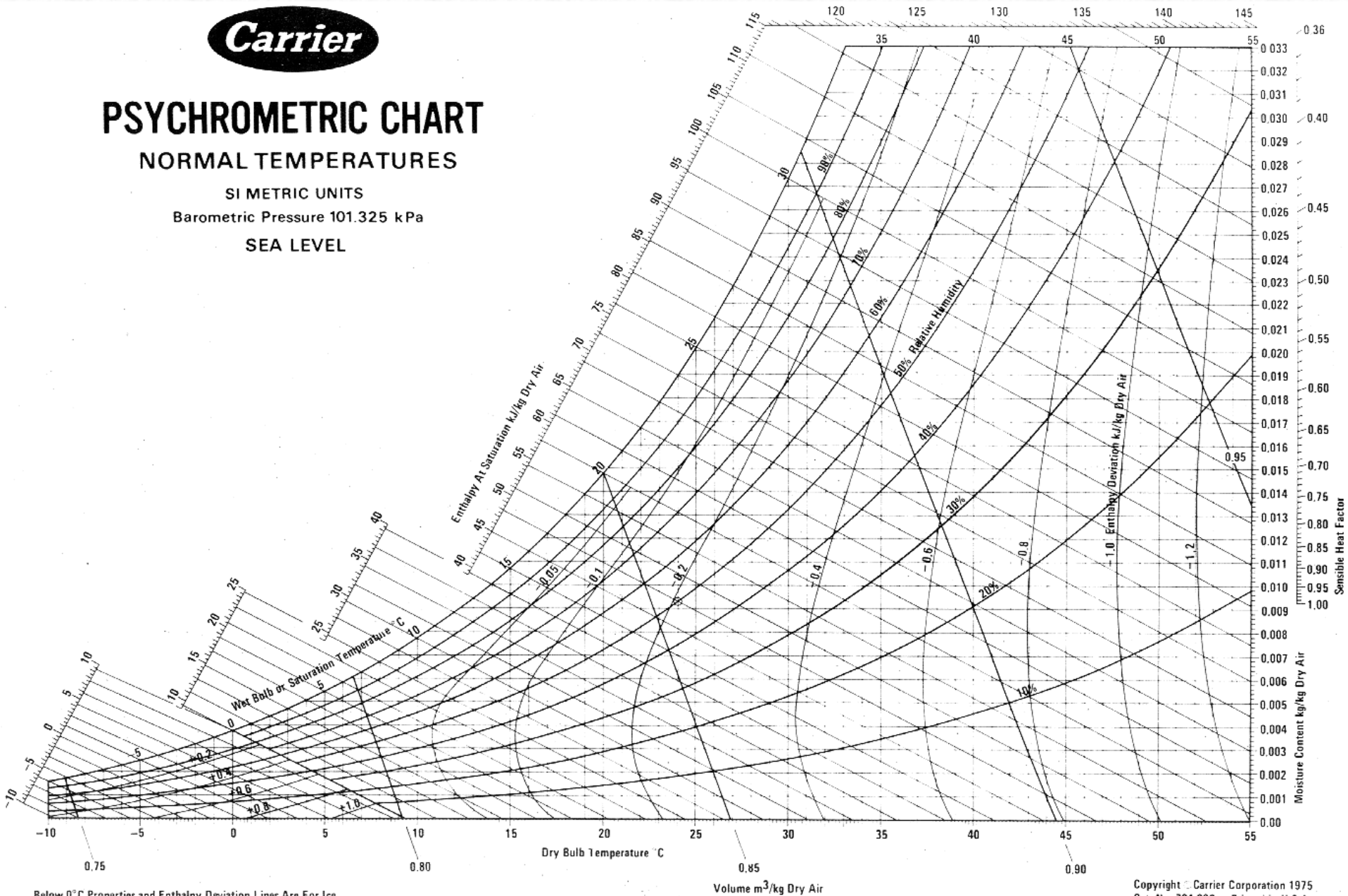
PSYCHROMETRIC CHART

NORMAL TEMPERATURES

SI METRIC UNITS

Barometric Pressure 101.325 kPa

SEA LEVEL



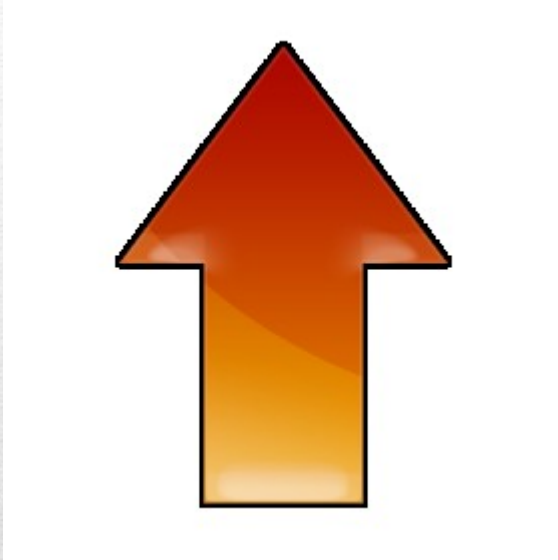
Below 0°C Properties and Enthalpy Deviation Lines Are For Ice

Volume m³/kg Dry Air

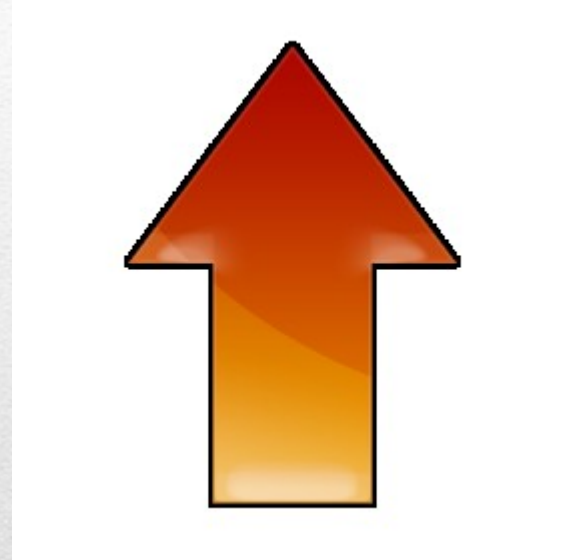
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RH



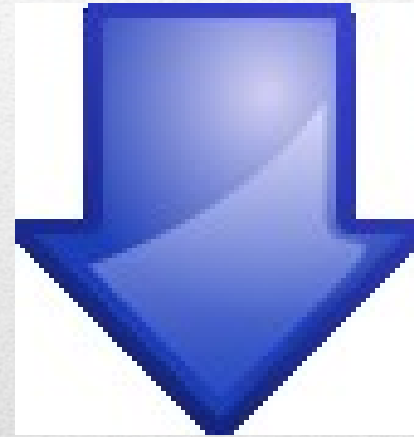
dew point



constant temperature

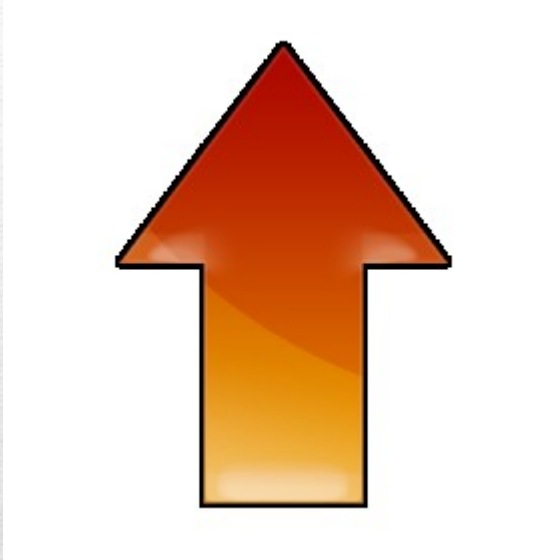
RH

dew point

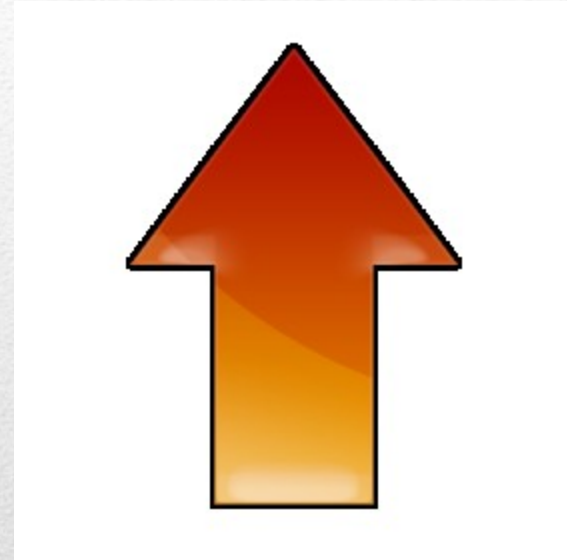


constant temperature

temperature



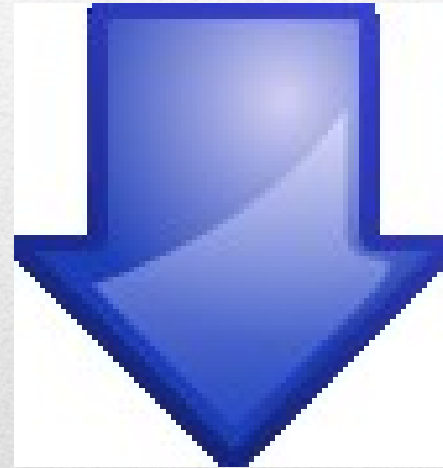
dew point



constant RH

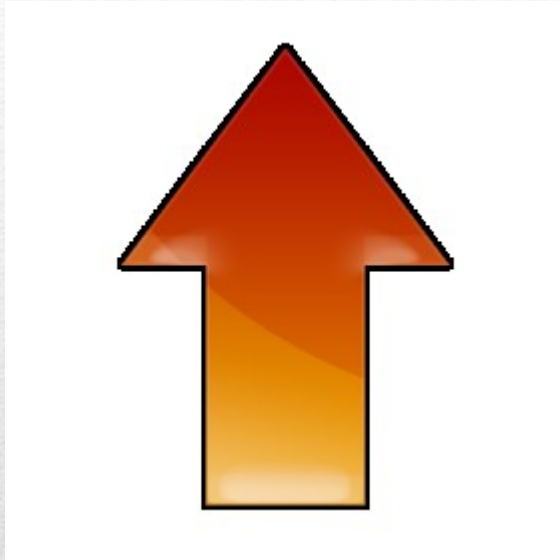
temperature

dew point

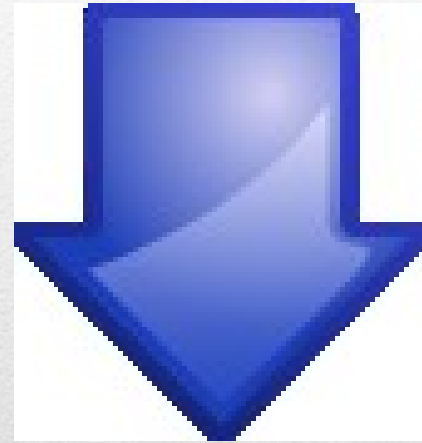


constant RH

temperature



RH

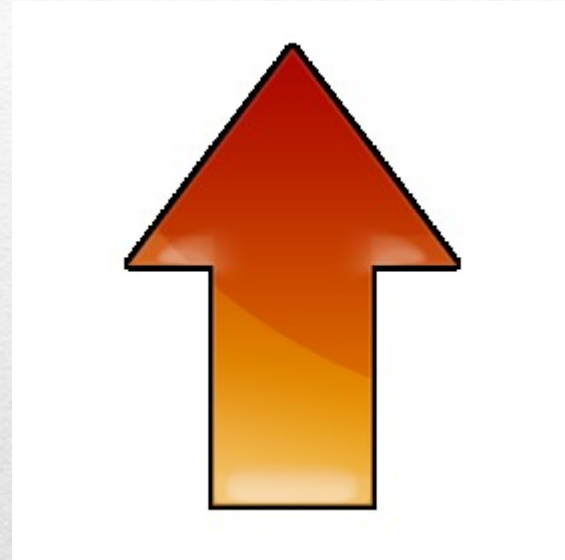


constant dew point

temperature



RH



constant dew point



Dew Point Calculator

IMAGE · PERMANENCE · INSTITUTE

Home

How to Use

About

Welcome to the Dew Point Calculator

1. Use the sliders for Temperature, Relative Humidity (RH) and Dew Point to define an environment.
2. Observe the relationship of the three environmental variables. For example, as Temperature goes up, the RH goes down.
3. Notice the preservation consequences of different combinations of Temperature and RH in the Preservation Evaluation section.

Track Energy Savings!

With the PEM2 - IPI's newest electronic temperature and RH logger.



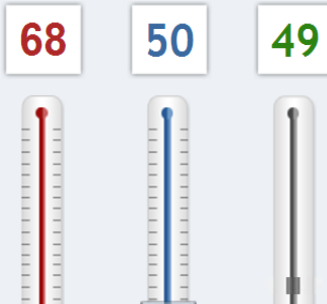
only \$349

Buy Now!

(software included)

Click to Solve for:

Temperature % RH Dew Point



Preservation Evaluation

Type of Decay	Environment Rating	Preservation Metric
Natural Aging	RISK	PI 44
Mechanical Damage	OK	% EMC 9.3
Mold Risk	GOOD	Days to Mold No Risk
Metal Corrosion	OK	% EMC 9.3

IPI dew point calculator



Image Permanence Institute | Environmental Monitoring, Image Stability
Evaluation and Sustainable Preservation Practices

journey

PEMdata
web-based preservation management

Home FAQ **Metrics** Monitoring PEM2 Support Contact

Natural Aging Mechanical Damage Mold Risk Metal Corrosion

Preservation Metrics

Type of Decay:
Natural Aging

Metrics Used:
Time Weighted Preservation Index (TWPI)

TWPI Value (years)	Interpretation
≥75	Good
45-75	OK
≤45	RISK

Interpretation:
Higher the TWPI, the better

Measures:
The rate of "natural aging" as determined by the rate of spontaneous chemical change in organic materials.

- TWPI integrates the T and RH values as they change over time into a single estimate of the cumulative effects of the environment on the rate of chemical decay.
- TWPI is helpful as a quantitative comparison of the preservation quality of different storage locations or environments.

Applies to:
All Organic Materials (paper, textiles, plastics, dyes, leather, fur, etc)

[Login](#)
User Name:
Password:

[forgot your password?](#)

Create a New Account
Register with your email address to save your data and account settings
[Why Register?](#)

Guest User
Data Upload without registration

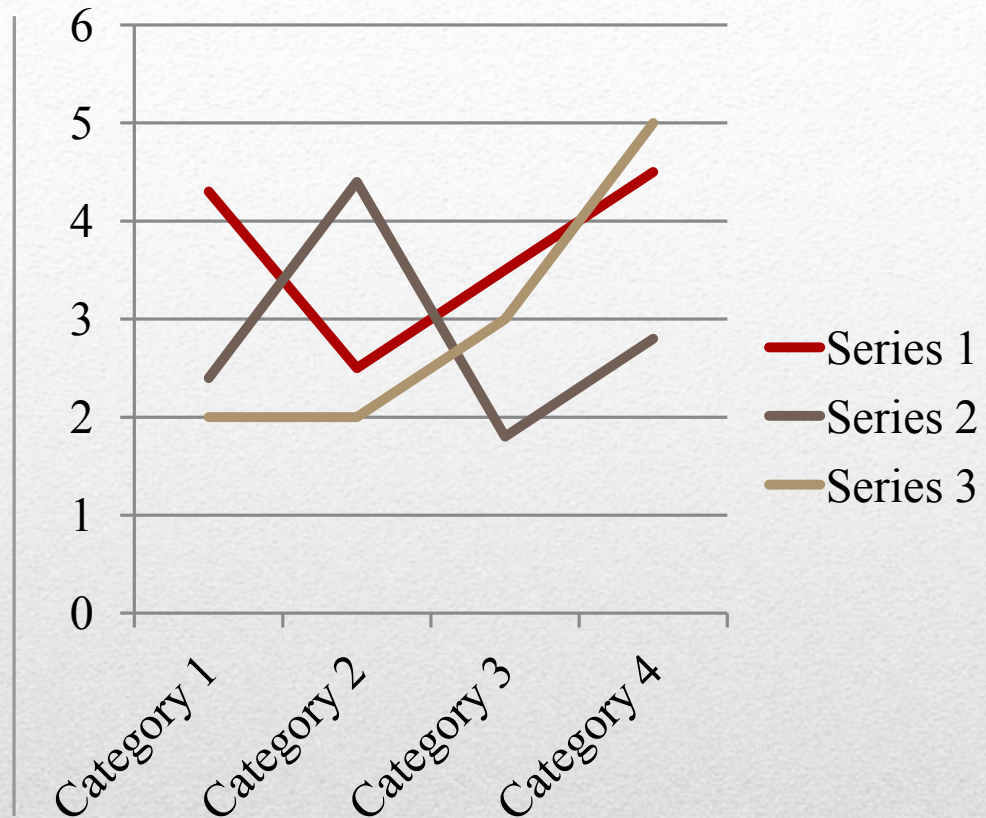
PEMdata Demo
Try PEMdata right now with a set of demo datasets

[Security and Privacy](#)

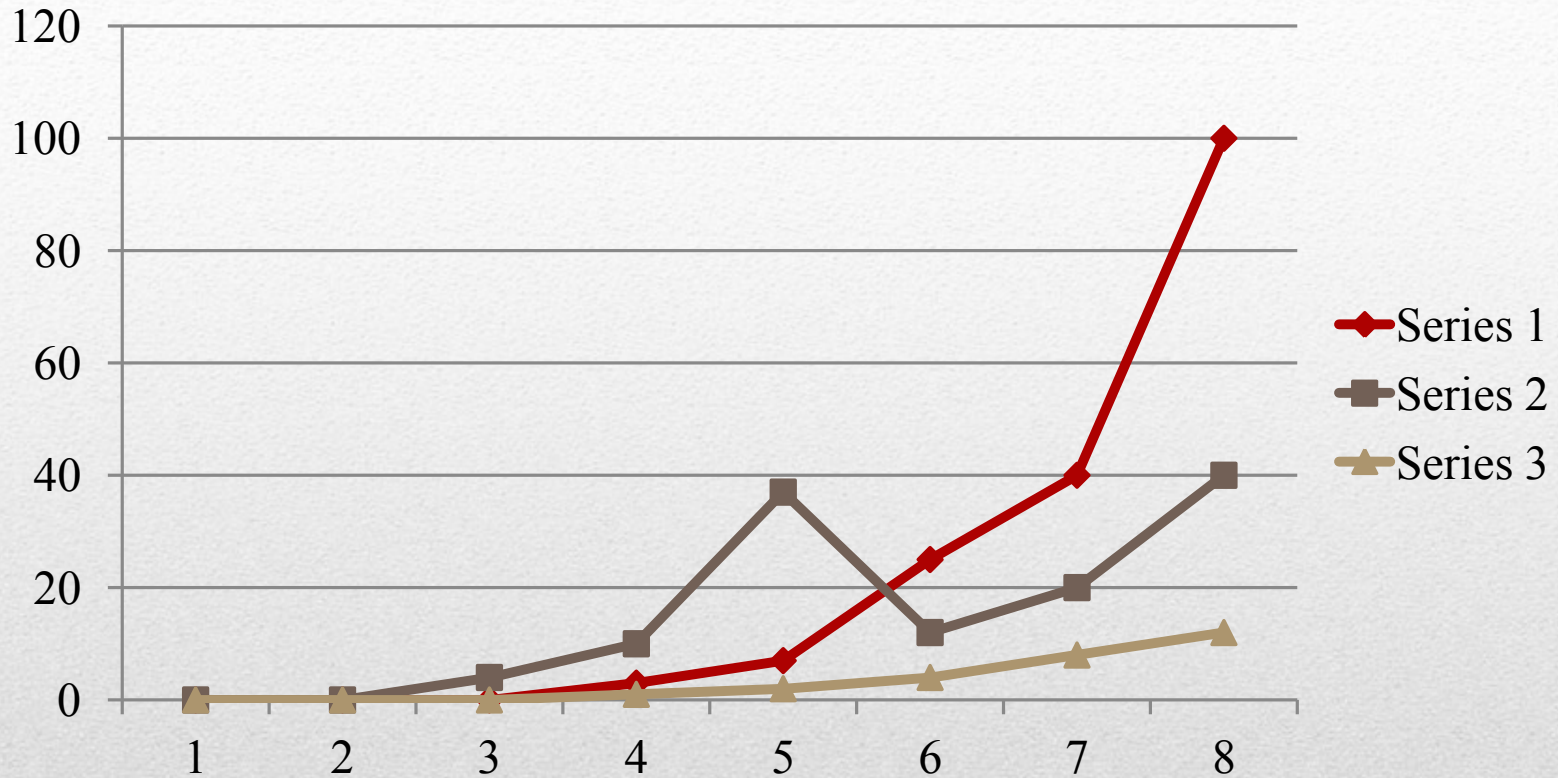
Time Weighted Preservation Index integrates the T and RH values as they change over time into a single estimate of the cumulative effects of the environment on the rate of chemical decay.

TWPI

graphs represent data in a visual format that is easy to read and to interpret



graph basics



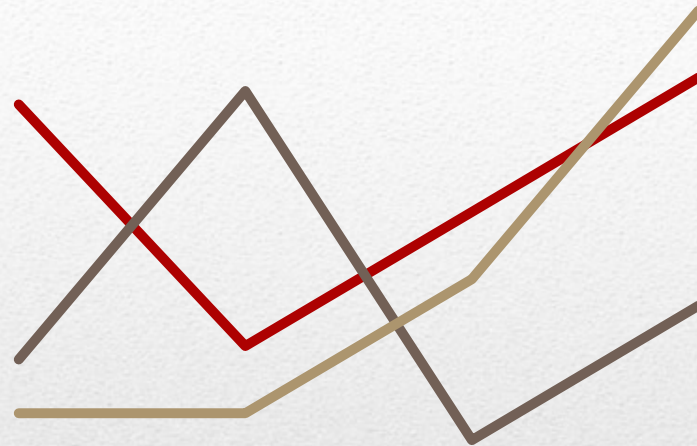
what does it mean?

title

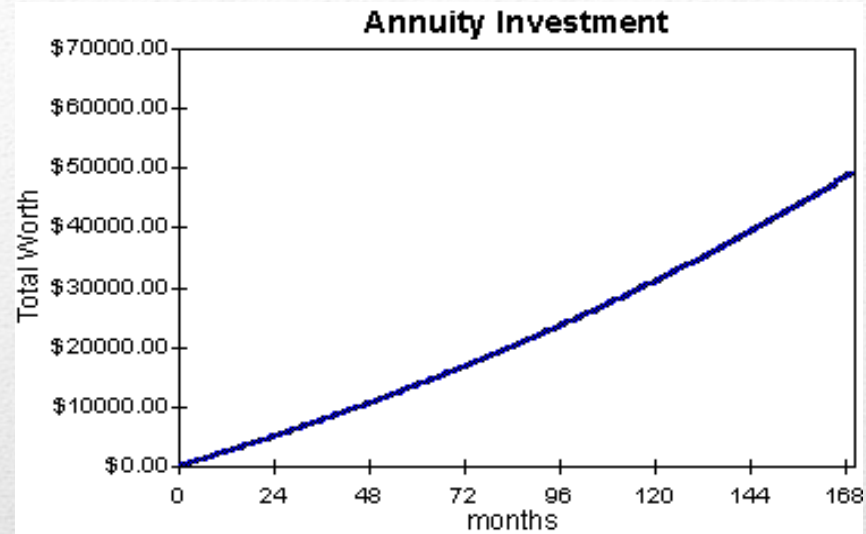
axes

units of
measurement

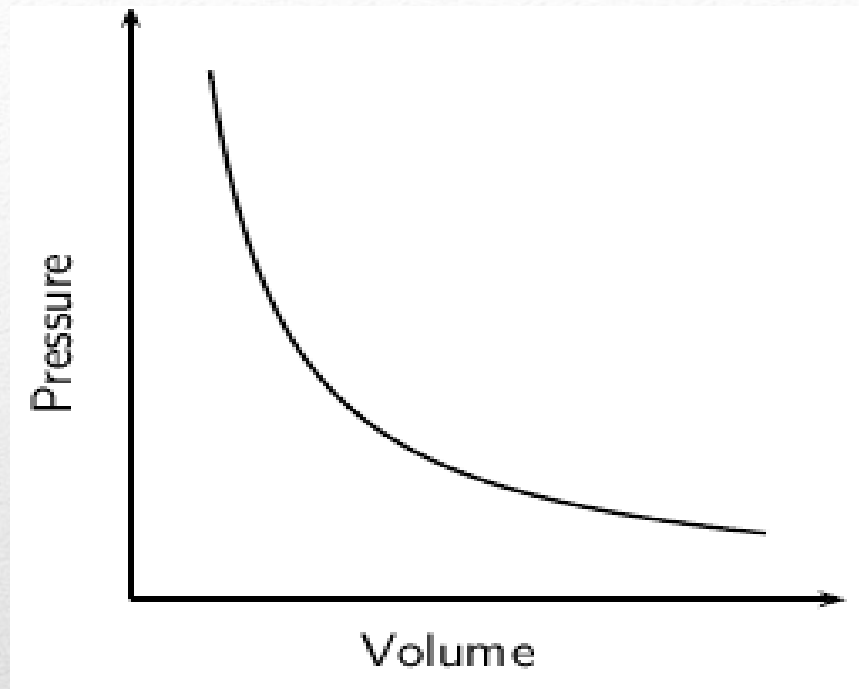
scale



clues for interpretation



direct relationship



indirect relationship

PEMdata



investigate the data

Temperature
equilibrium in 24
hours

Moisture content
in weeks or
months



sustainability
