

Deciphering Humidity Accuracy

TI Precision Labs – Humidity Sensing

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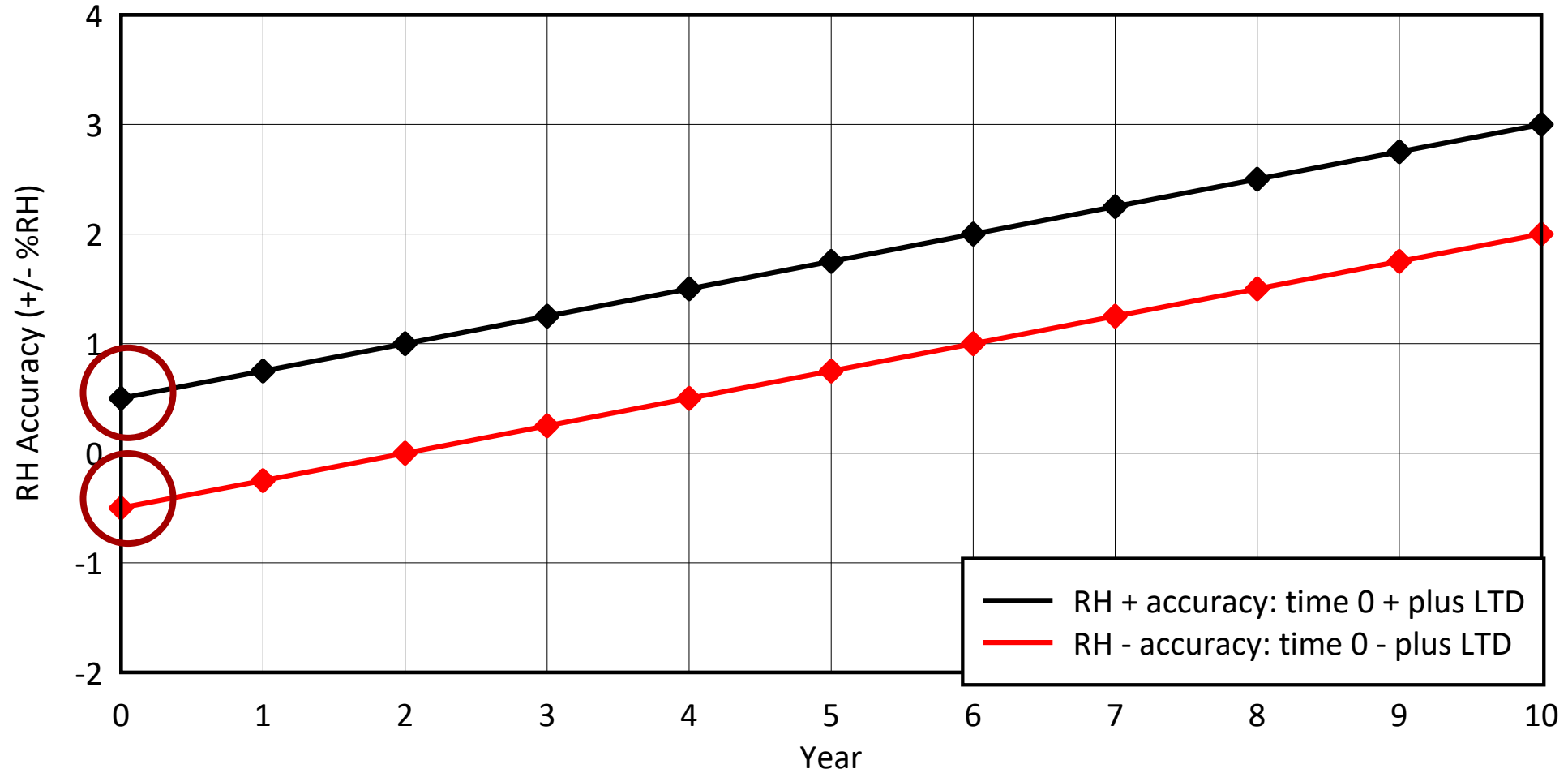
Relative humidity accuracy components

Time zero
accuracy

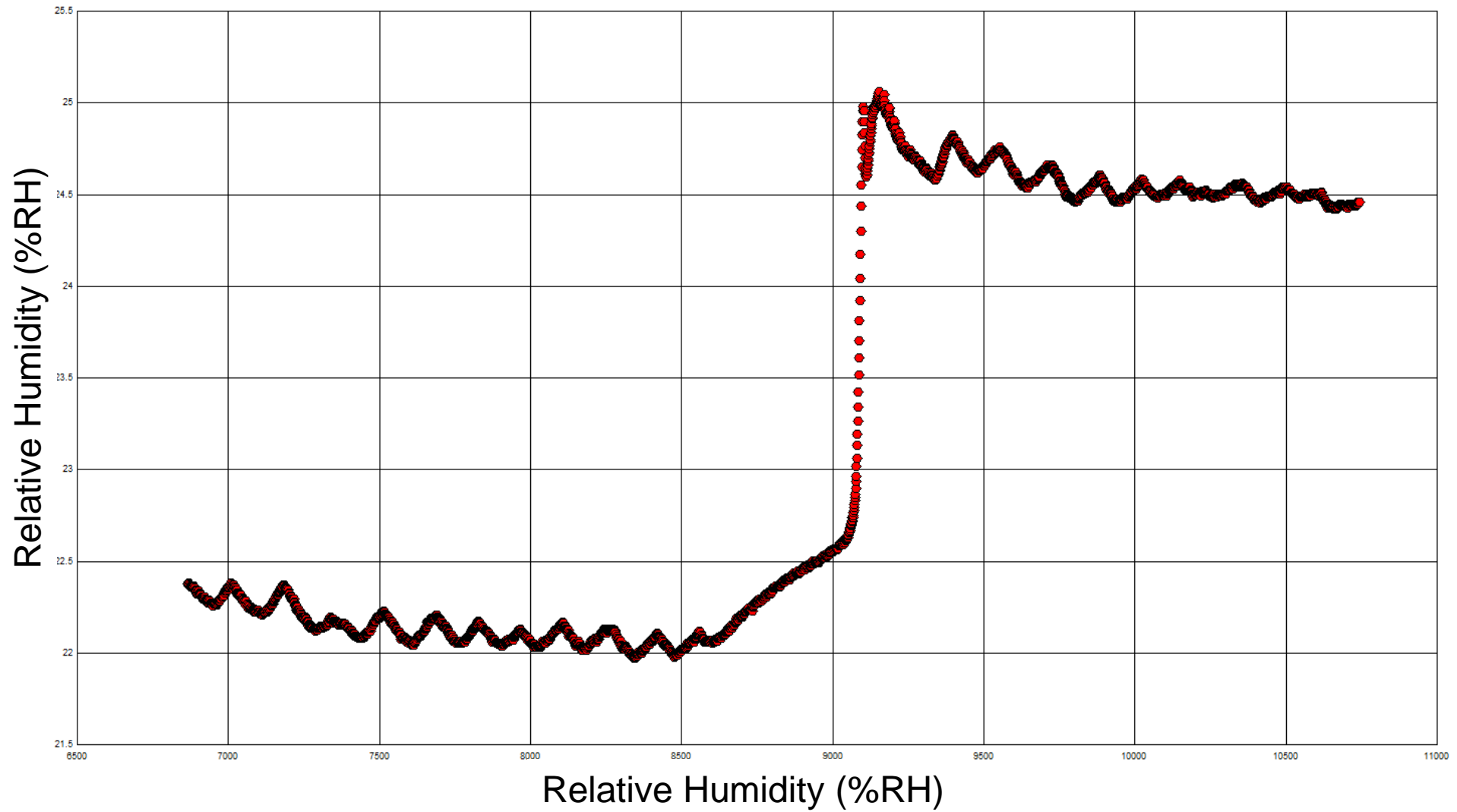
Long term
drift

Hysteresis

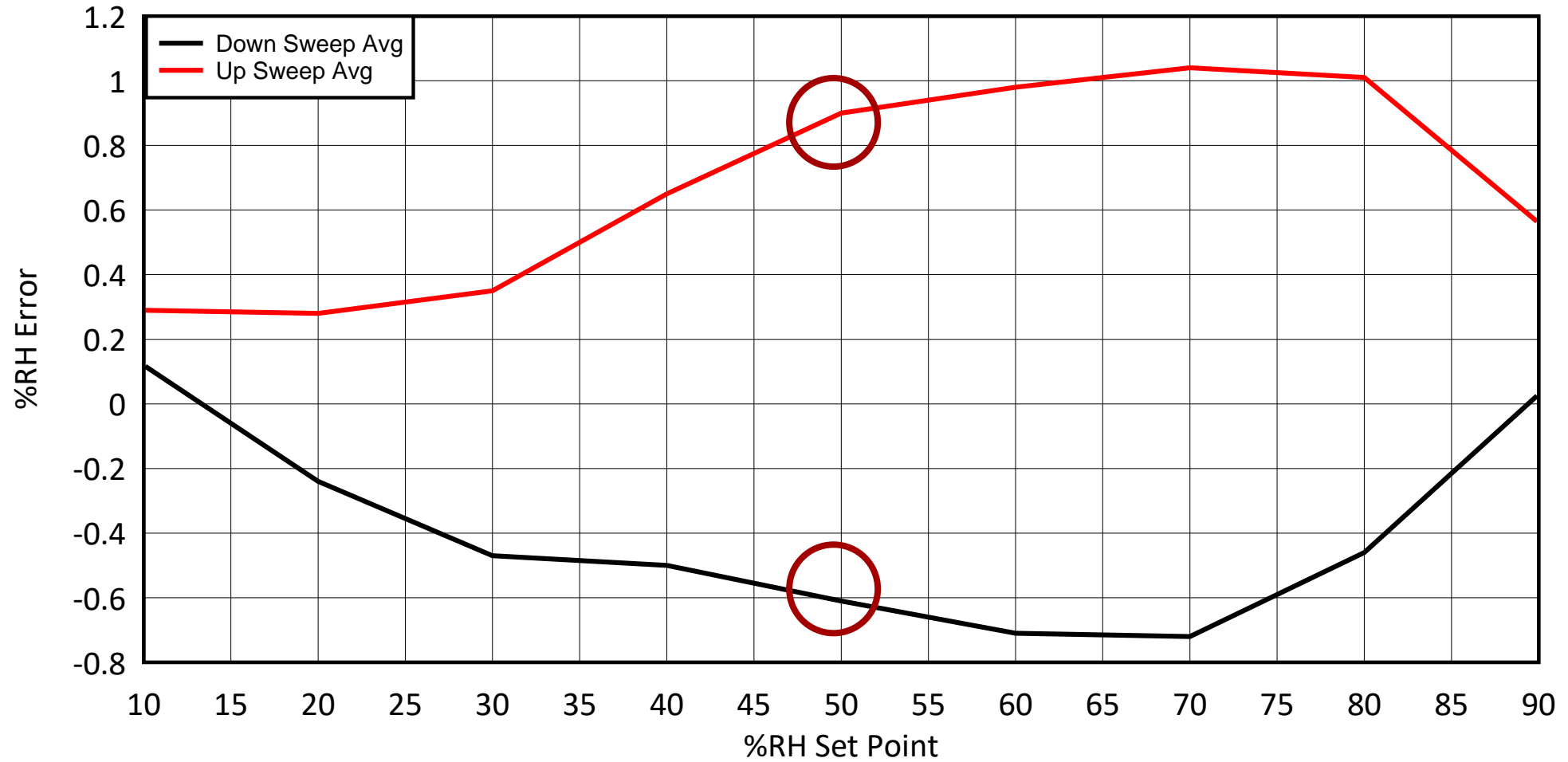
Time zero accuracy and long term drift



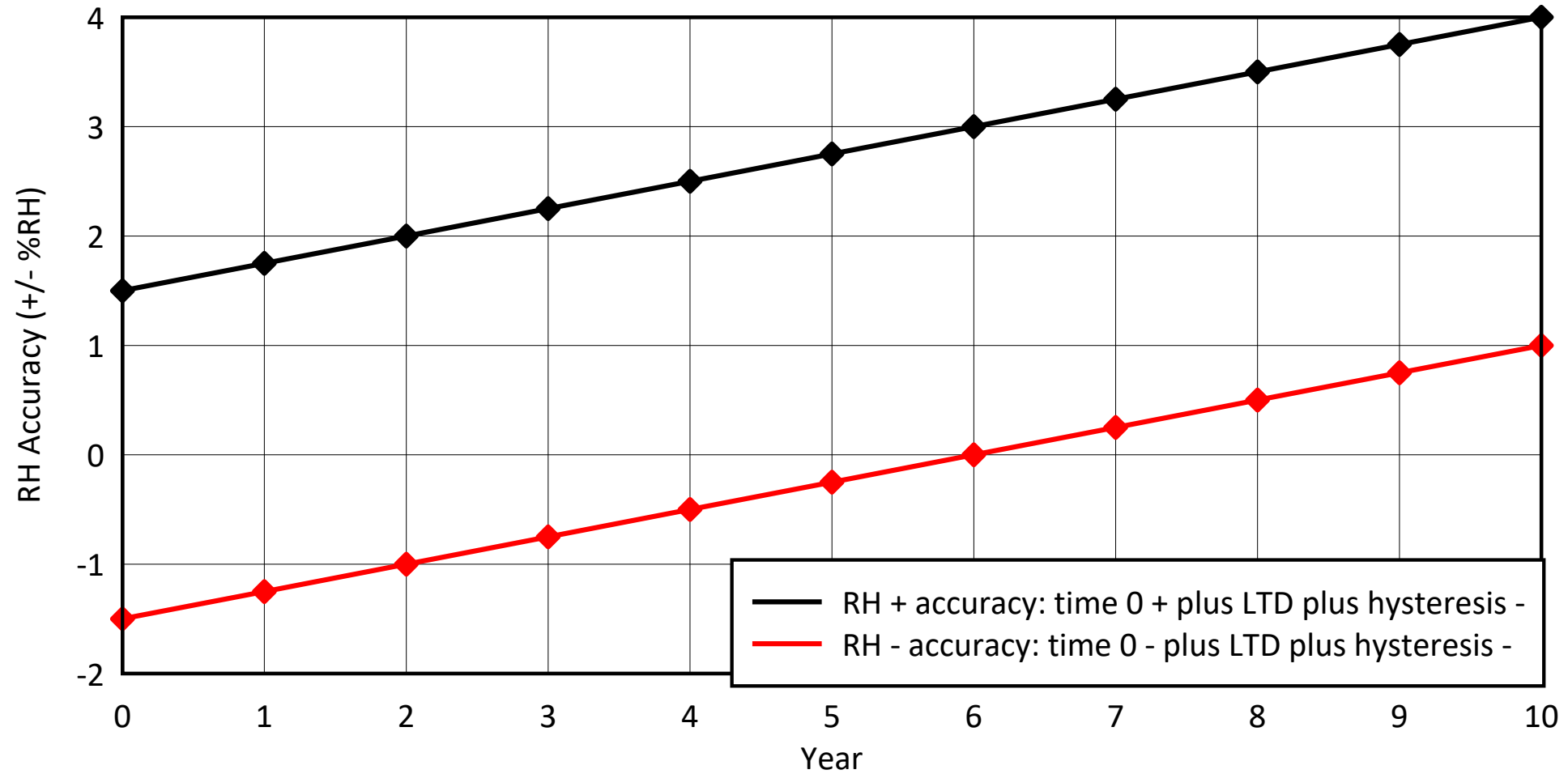
Hysteresis



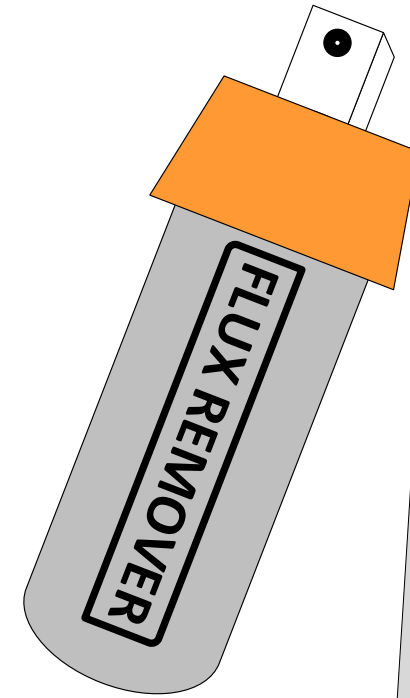
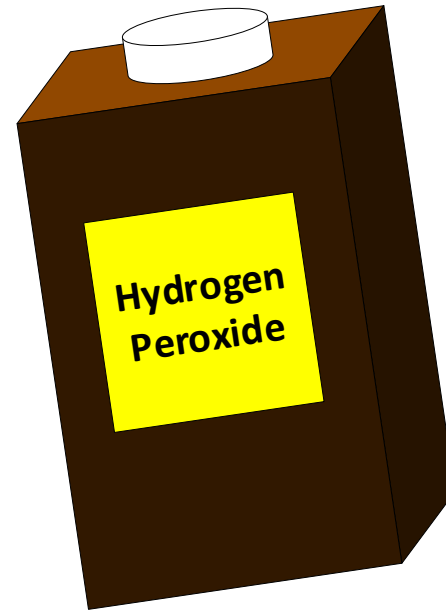
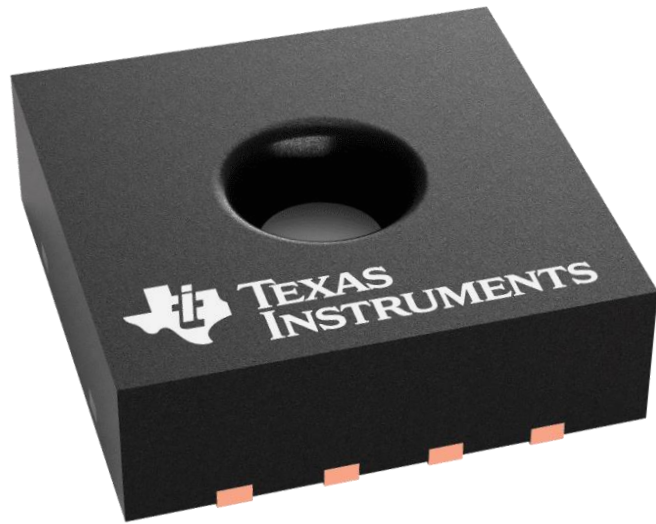
Hysteresis



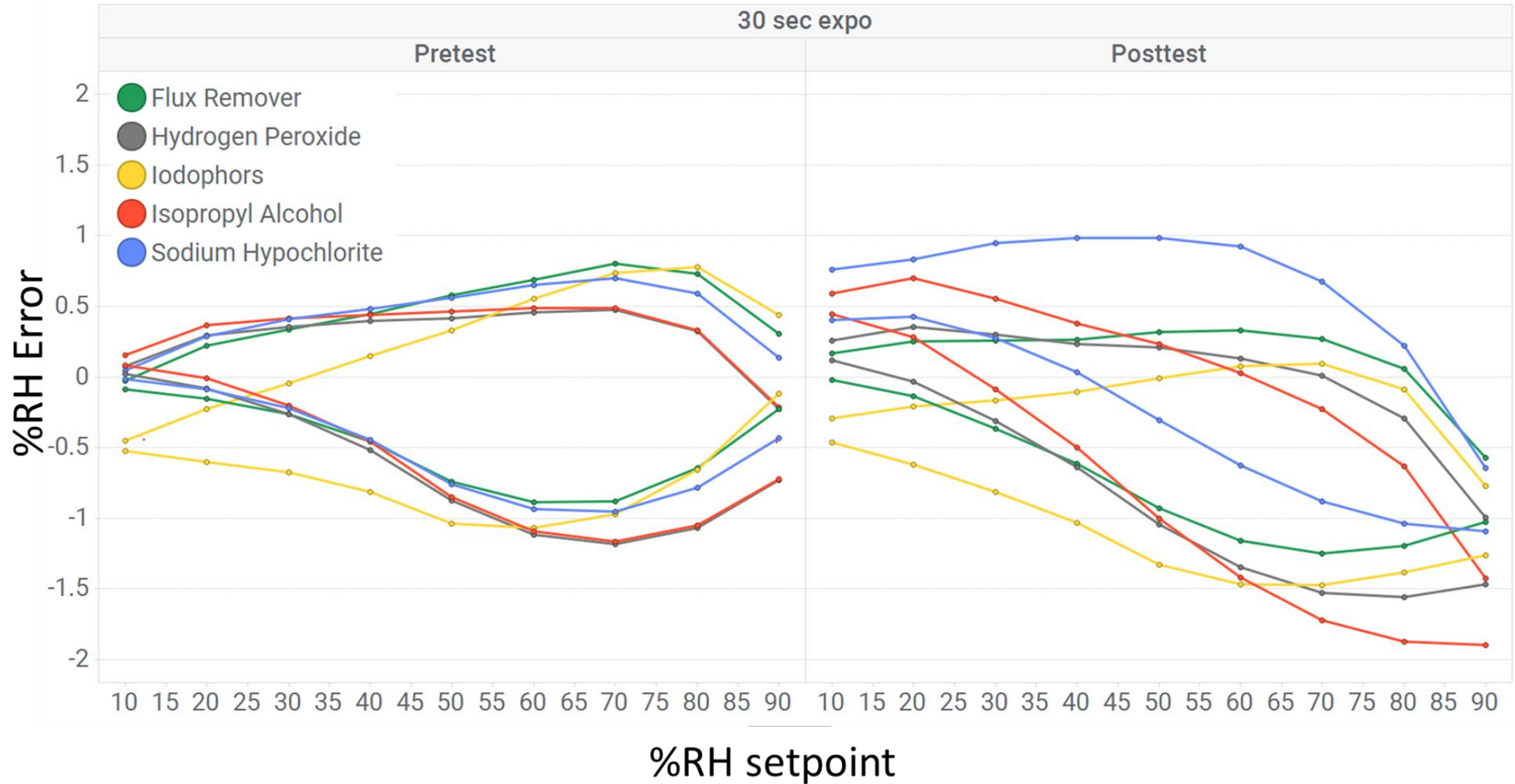
Time zero accuracy, LTD, and hysteresis



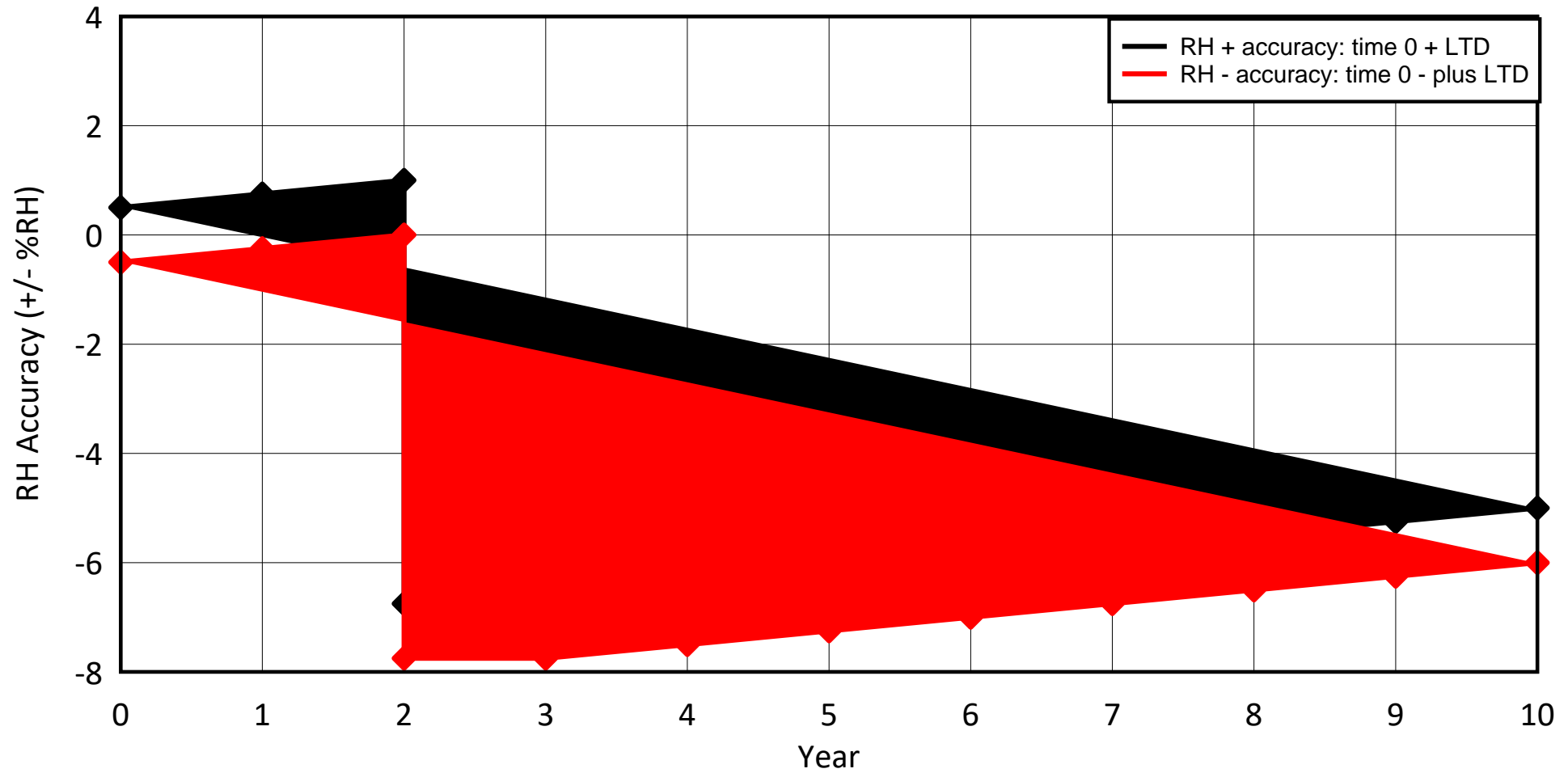
Chemical contamination



Chemical contamination



Chemical Contamination



Chemical contamination

- **Solvents such as:**
 - Toluene: C_7H_8
 - Acetone: $(CH_3)_2CO$
 - Ethanol: C_2H_6O
 - Methanol: CH_3OH
 - Isopropyl Alcohol: C_3H_8O
 - Di-isopropyl Ether: $C_6H_{14}O$
 - Ethylene Glycol: $(CH_2OH)_2$
 - Ethyl Acetate: $C_4H_8O_2$
 - Butyl Acetate: $C_6H_{12}O_2$
 - Methyl Ethyl Ketone:
 $CH_3C(O)CH_2CH_3$
- **Acids such as:**
 - Hydrochloric Acid: HCl
 - Sulfuric Acid: H_2SO_4
 - Nitric Acid: HNO_3
- **Other chemicals, including:**
 - Ketenes
 - Ammonia: NH_3
 - Hydrogen Peroxide: H_2O_2
 - Ozone: O_3
 - Formaldehyde: CH_2O

Summary

Long term
drift

- Lifetime drift of a device
- Not associated with harsh conditions

Hysteresis

- Memory effect of humidity sensors

Chemicals

- May cause irreversible drift of %RH output

To find more humidity sensor technical resources and products, visit ti.com/humidity