# SACX™ Wetting Balance Tests

## Temperature v SAC0307

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# Objective

- To examine the effect of Temperature on the wetting speed of Lead-Free alloys using a wetting balance and standard copper test pieces.
- To compare SACX with SAC0307 for wetting.

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# Test Method

- Wetting Balance – GEC Meniscograph
- Alloy temperatures 250°C and 260°C.
- Immersion:
  - Speed 10mm per second
  - Depth 3mm
  - Time 5 seconds


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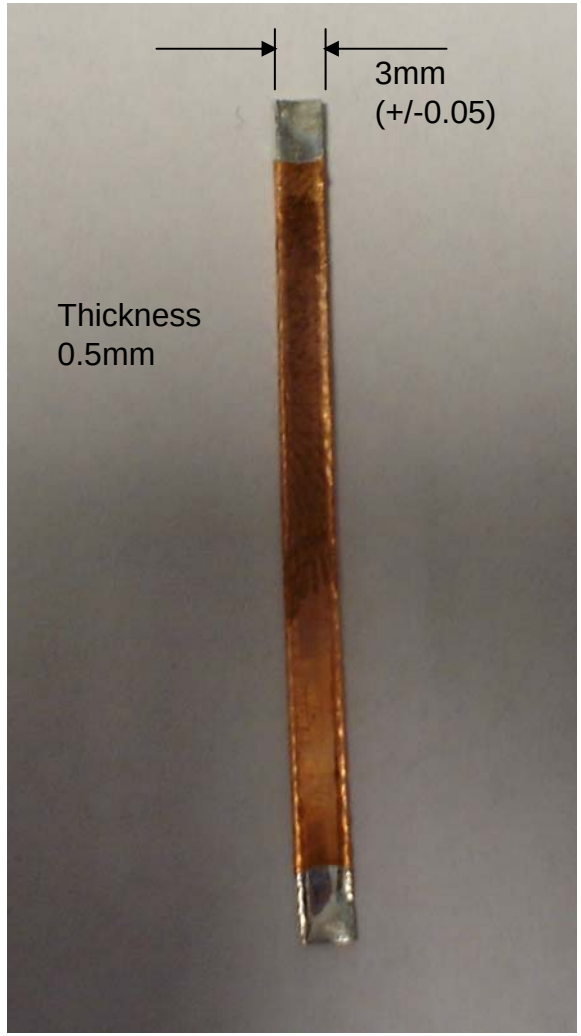
# Test Piece

- C101 Copper Strip
- Preparation:
  - Degreased
  - Pre-clean in copper brite solution.
  - Water washed.
  - IPA washed.
  - Dried.
  - Dipped to 6mm depth in Alpha EF-6000 Flux
- 5 test pieces for each alloy

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# Test Results

| Alloy | Time to Cross zero axis (sec) | | | | | Average | Std Deviation | Std Error |
|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | | | |
| 250 C SAC0307 | 1.61 | 1.48 | 1.49 | 1.77 | 1.67 | 1.60 | 0.12 | 0.05 |
| 250 C SACX™ | 1.35 | 1.41 | 1.285 | 1.39 | 1.43 | 1.37 | 0.06 | 0.03 |
| 260 C SAC0307 | 0.78 | 0.90 | 1.08 | 0.82 | 0.89 | 0.90 | 0.12 | 0.05 |
| 260 C SACX™ | 0.74 | 0.76 | 0.79 | 0.74 | 0.75 | 0.76 | 0.02 | 0.01 |

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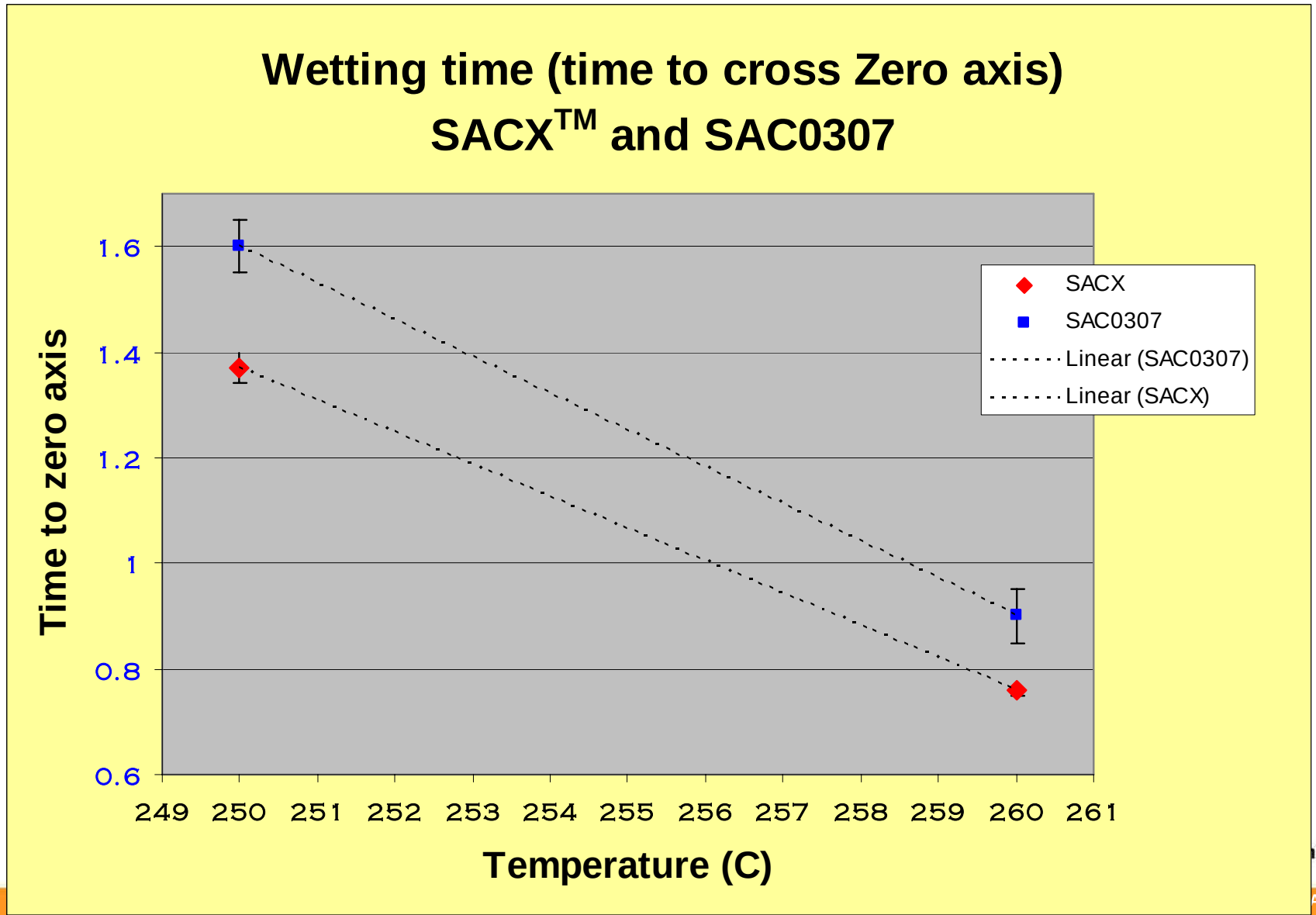
# Test Results Chart



# Comments

- The increase in temperature of 10°C improves the wetting speed for both alloys.
- At 260°C SACX™ wets the copper 0.14 seconds faster than SAC0307. This is equivalent to an 18% improvement.
- The “X” additives in SACX™ improve the wetting performance.
- Better wetting will improve Hole-Fill and bridging performance.

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