

Product/Process Change Notifications



PCN - 20 012

Amphenol Information Communication and Commercial Products Group

www.amphenol-icc.com

Release Date: March 11 2020

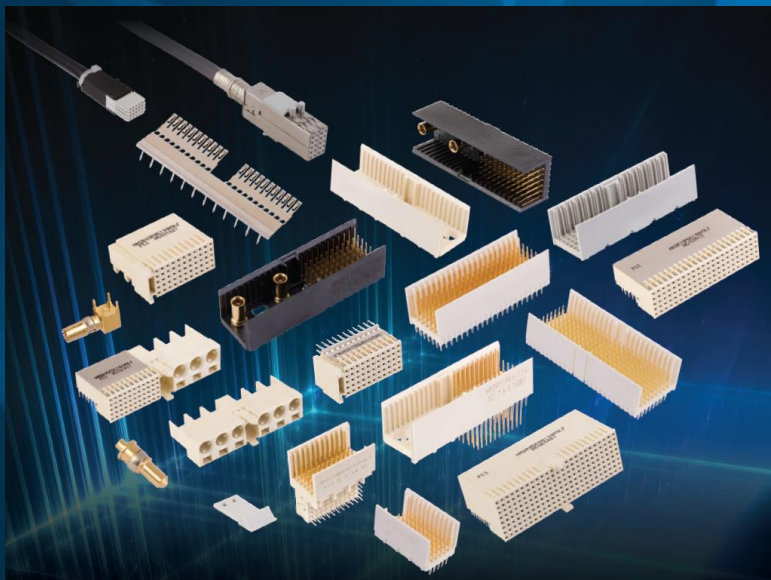
Product Name:	Metral High Speed and Metral		
	Metral High Speed and Metral - All Versions		
Product Manager:	Jibu Babu		
Subject:	Notification of Change with Immediate Effectivity		
Distribution:	All Customers		
Type of Change:	Materials Change		
Change Description:	We propose to add GXT+ as approved plating material (as per details attached) for Metral meeting the product performance specifications. There is no change to the existing plating location nor to the part numbers.		
Reason for Change:	Palladium prices have increased significantly over the last several years causing drastic increase in cost of production. We are reviewing the current product pricing. To reduce the impact of palladium metal price spiral on the cost of production, we are implementing GXT+ plating in our process. Your approval will help to limit the price increase.		
Affected Parts:	See attached Affected Parts.xls file		
Effective Date of Change:	May 31, 2020		
Last Time Buy Date:	NA		
Last Disty Return Date:	NA		
Last Time Shipment Date	NA		
Datasheet Attached?	Select		
Qual/Test Data Attached?	NA		
Samples Availability Date:	March	10	2020
Available Alternatives?	Select		
Questions?	<i>Contact your local AICC Representative, or Product Manager</i>		
	<i>Jibu Babu</i>		
	<i>914843391946 / Jibu.Babu@fci.com</i>		

Note:

Customers should contact Product Manager (or their local AICC Representative) directly regarding any concern on the PCN. Lack of any such customer feedback within three weeks of PCN release date will be interpreted as non-objection .

PCN20012	89099-158LF	MATERIALS CHANGE	May 31, 2020						JIBU.BABU@FCI.COM	
PCN20012	92504-102LF	MATERIALS CHANGE	May 31, 2020						JIBU.BABU@FCI.COM	
PCN20012	93235-122LF	MATERIALS CHANGE	May 31, 2020						JIBU.BABU@FCI.COM	
PCN20012	93235-131SLF	MATERIALS CHANGE	May 31, 2020						JIBU.BABU@FCI.COM	
PCN20012	93235-141SLF	MATERIALS CHANGE	May 31, 2020						JIBU.BABU@FCI.COM	
PCN20012	HM1L52ADP344H6PLF	MATERIALS CHANGE	May 31, 2020						JIBU.BABU@FCI.COM	
PCN20012	HM1L52ADP368H6PLF	MATERIALS CHANGE	May 31, 2020						JIBU.BABU@FCI.COM	

Metral / Metral HS Product Line GXT+ Plating Upgrade



March 2020

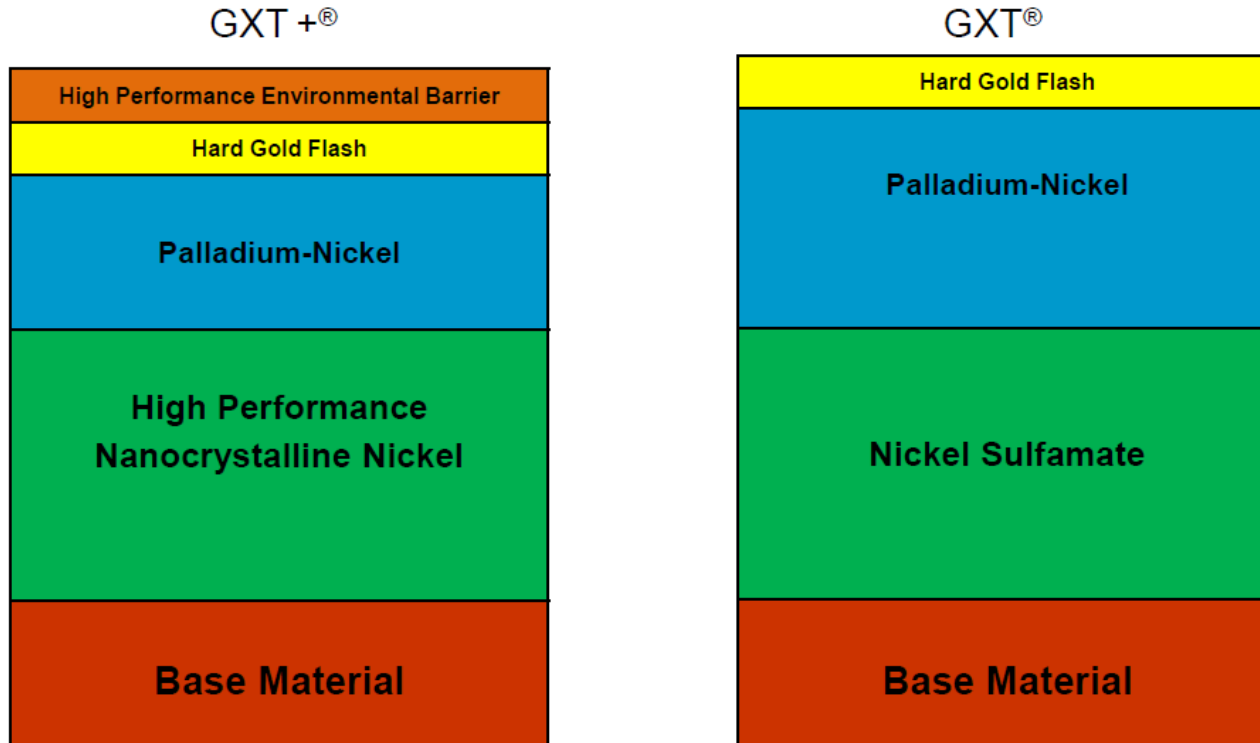
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FCi Basics

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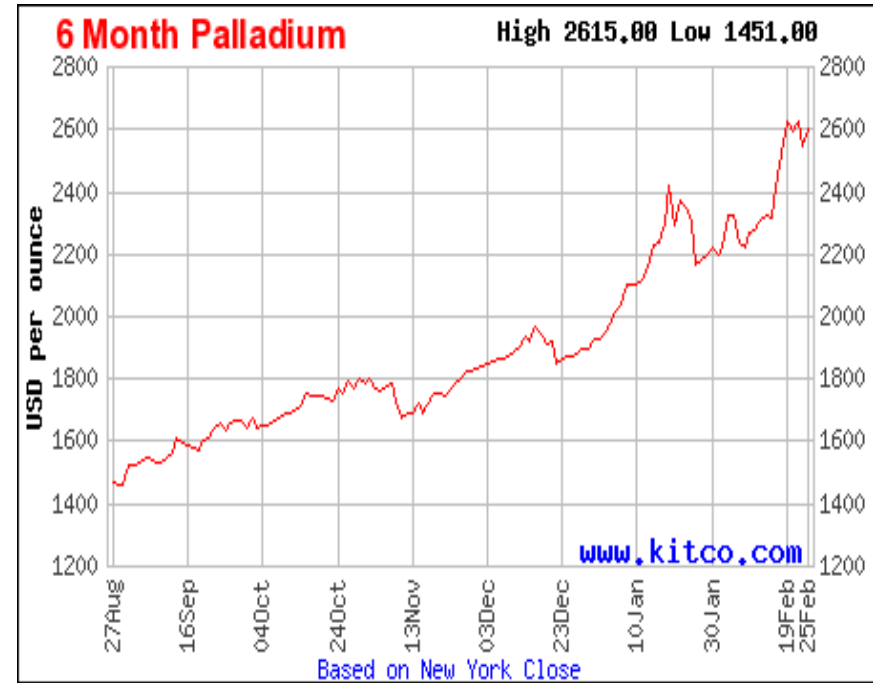
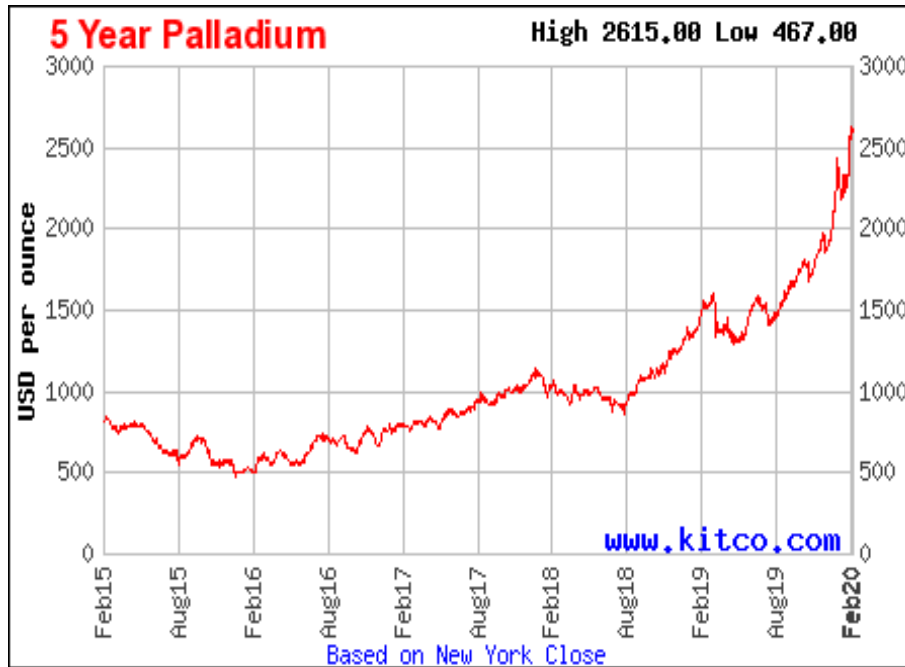
Overview of GXT & GXT+ Plating

- GXT ® plating is developed more than 30 years ago and was widely used in Millipacs, DIN, Metral, Dsub and other products of Amphenol Basics, HSBP and Consumer Product Portfolio.
- GXT +® plating was developed in 2012 as an upgrade version of current GXT plating. This plating type has been used by many other Amphenol product lines for years.
- Same as GXT ® plating, GXT+® plating also passed all internal and industry standard performance spec. As a conclusion, there is no product performance change between two plating types.
- Plating line is upgraded to handle production of GXT+
- No PN change is proposed with GXT+® supplies



- **GXT+® uses a nanocrystalline Ni deposit that replaces the current Ni layer**
- **The thickness of the hard gold layer remains the same.**
- **Reduction of the PdNi deposit and a high performance environmental barrier is applied.**

Palladium price spiral

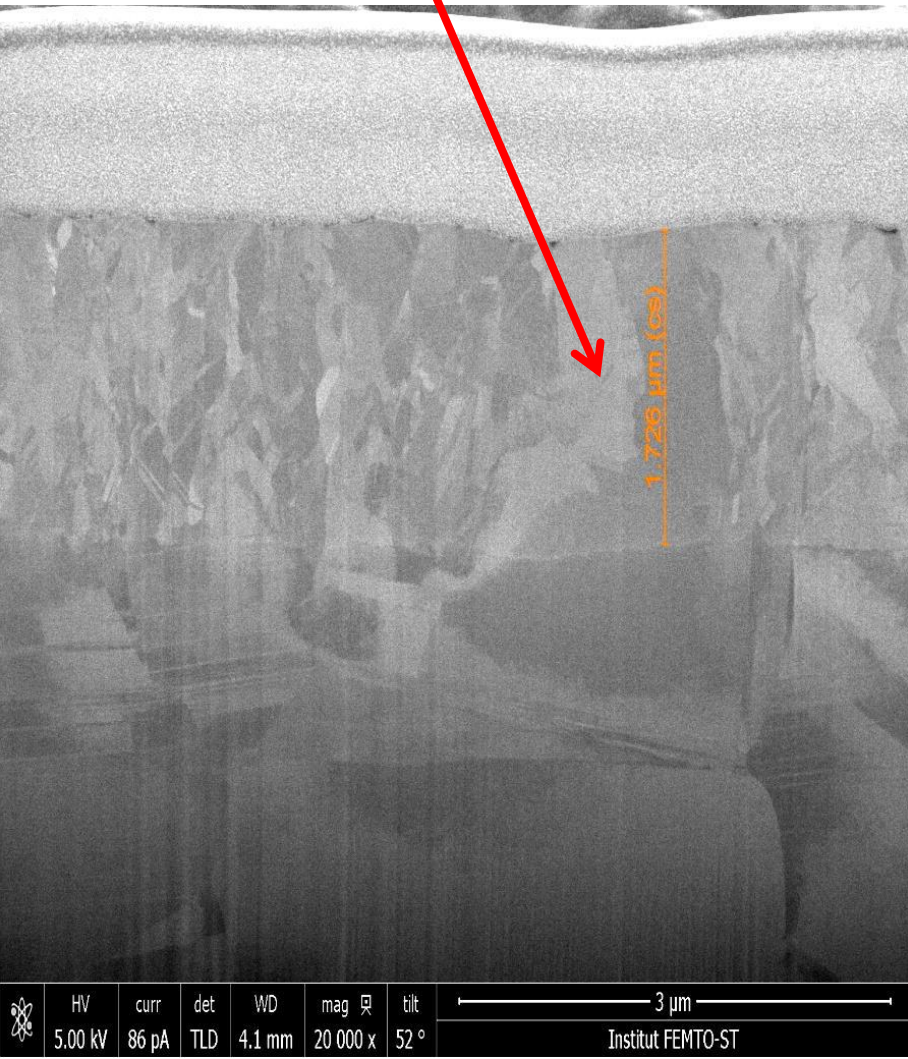


Palladium price changes over the last few months have been drastic. GXT +® plating use less Palladium, so this plating type will be less impacted by the Palladium price increase seen recently

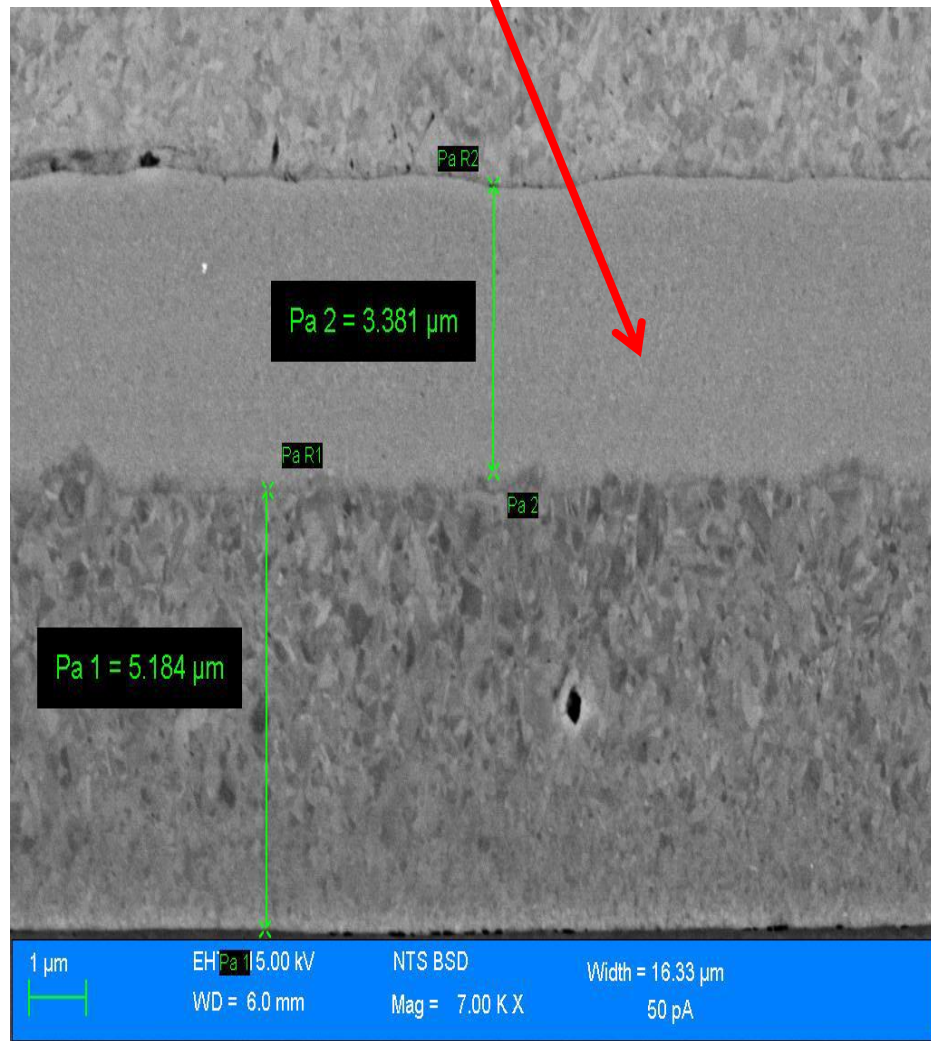
- Improved corrosion resistance via reduced porosity due to the improved Ni grain structure.
- Improved Plating process control
- Similar or greater plating capacity

Nano-Crystalline-Grain Structure ≡ FCI Basics

Matt Ni Sulfamate



Nano-Crystalline Ni



Poly- α - Olefin Lube

- As a result of several years R & D, Amphenol has developed a high performance Poly- α - Olefin (PAO) lube to be capable to reduce Au & PdNi thickness w/o compromising product performance.
- The PAO lube has been used for more than 10 years by different product lines in Amphenol.
- **This study validates that PAO does not impact thermal stability, wear resistance, corrosion resistance and contact resistance of the finished product.**

Thermal stability – TGA test

- Thermal Gravimetric Analysis (TGA) has shown that the PAO lube is stable in elevated temperatures, as well as through a Lead-Free (LF) reflow process and over molding application.

Size: 31.6060 mg
Method: Polymer Decomposition
Comment: TGA2950 VG7548, Lot#2C13K05

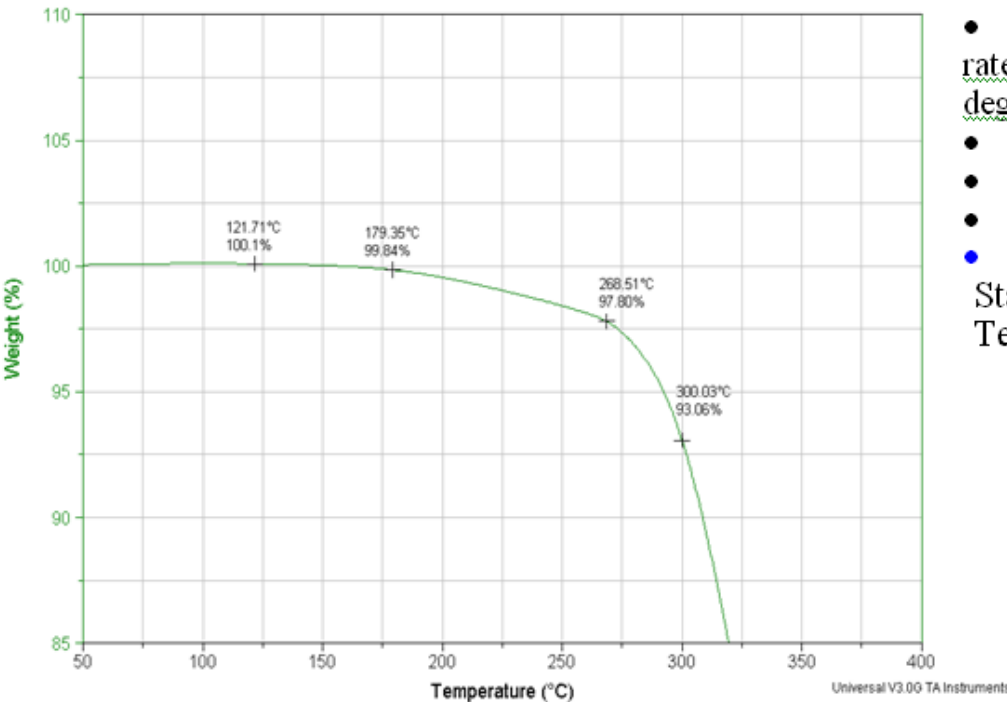
TGA

Operator: C. Rau
Run Date: 11-Dec-08 08:13

TESTS:

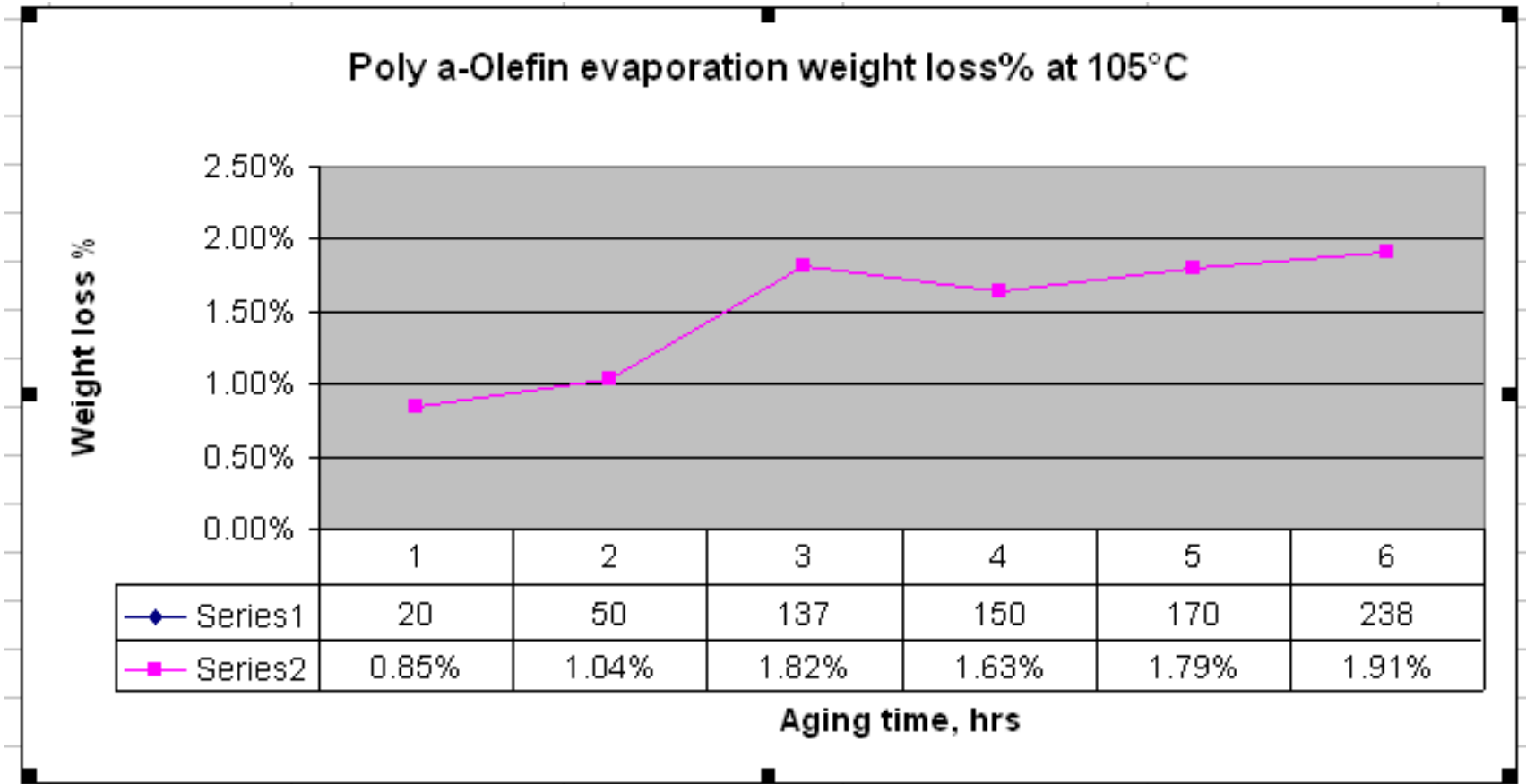
- ASTM method E1131-03 was followed with a Nitrogen flow rate of 40 mL/min, 5 minute isothermal, final temperature of 720 degrees centigrade and the parameters listed below:

	<u>Run 1</u>	<u>Run 2</u>	<u>Run 3</u>
• Sample size mg	22.97	48.65	31.61
• Heating Rate °C/min	5	20	20
• Test Data:			
Start of mass loss	122	146	122
Temperature °C			



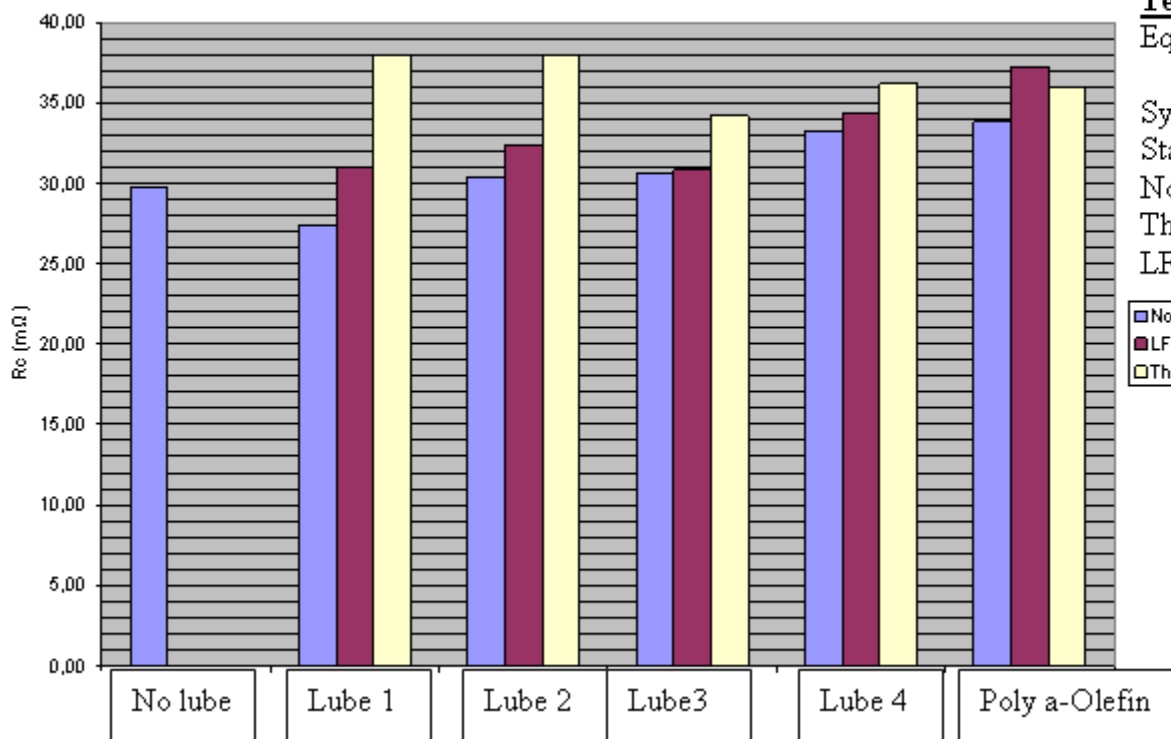
Thermal Stability – Evaporation Rate

- A thermal age test at 105°C for 238 hrs was conducted and the evaporation rate of this high performance Poly-a-Olefin lube is very low @ <2%. Refer to attached chart:



- Contact resistance impact from PAO after reflow & thermal aging conditions was evaluated. Measurements yielded results that were essentially equivalent to the four other surface treatments applied. Reflow treatment showed a slightly larger impact and a smaller impact from thermal aging. These affects are minimal and overall PAO is preferred for connector applications.

$R_{c(SH)} = f(\text{lubricant and post treatment})$



Test conditions for Contact Resistance measurements:

Equipment: Oscilating Tribotester from Tribotechnic with ohmmeter

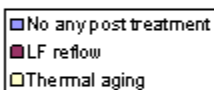
System: Ball against plan

Static partner: 6 mm diameter Brass ball Hard gold plated

Normal Force: 5N

Thermal ageing: 105°C for 65 hours

LF Reflow: 245°C peak Temperature



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Thank You