



Quality、Innovation、Service

品質、創新、服務



長  春

**LONGLITE<sup>®</sup> PAES**

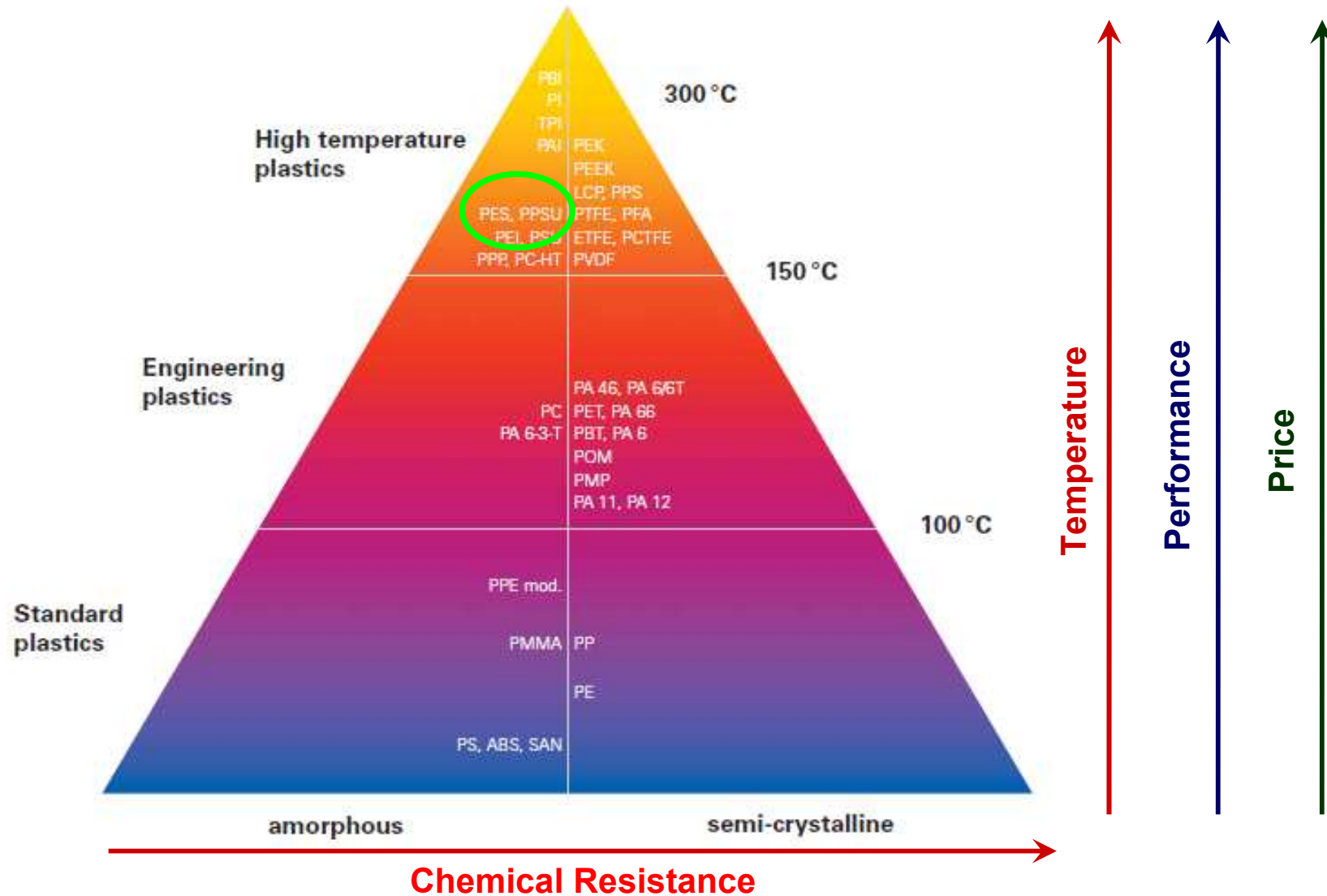
**High-Performance Sulfone Polymers**

**R&D Department/Hsin Chu Factory**

長春人造樹脂廠股份有限公司

**Chang Chun Plastics Co., Ltd.**

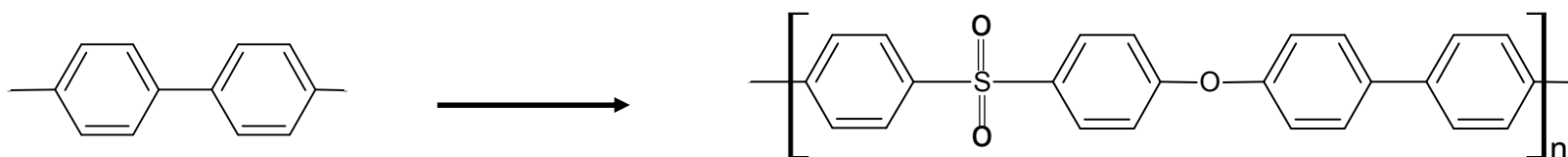
# High Performance Polymer



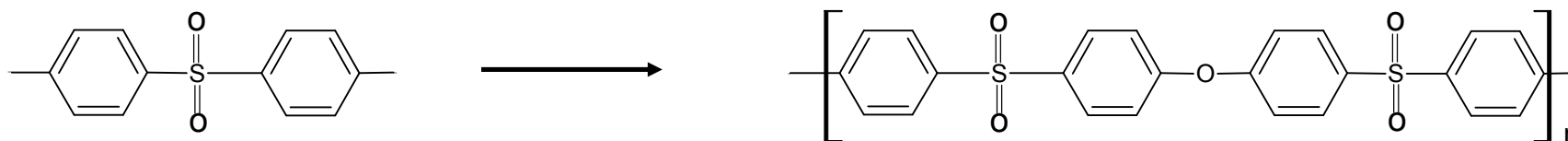
# LONGLITE<sup>®</sup> Poly Aryl Ether Sulfone

## High-Performance Sulfone Polymers:

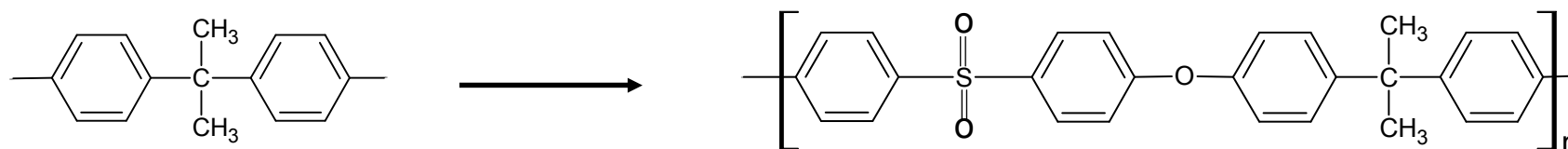
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Poly Phenyl Sulfone : market volume 2,000~6000 MT/Y



Poly Ether Sulfone: Market Volume 10,000 MT/Y



Poly Sulfone: Market Volume 60,000 MT/Y

# Poly Aryl Ether Sulfone Application





# PAES Application

## Features :

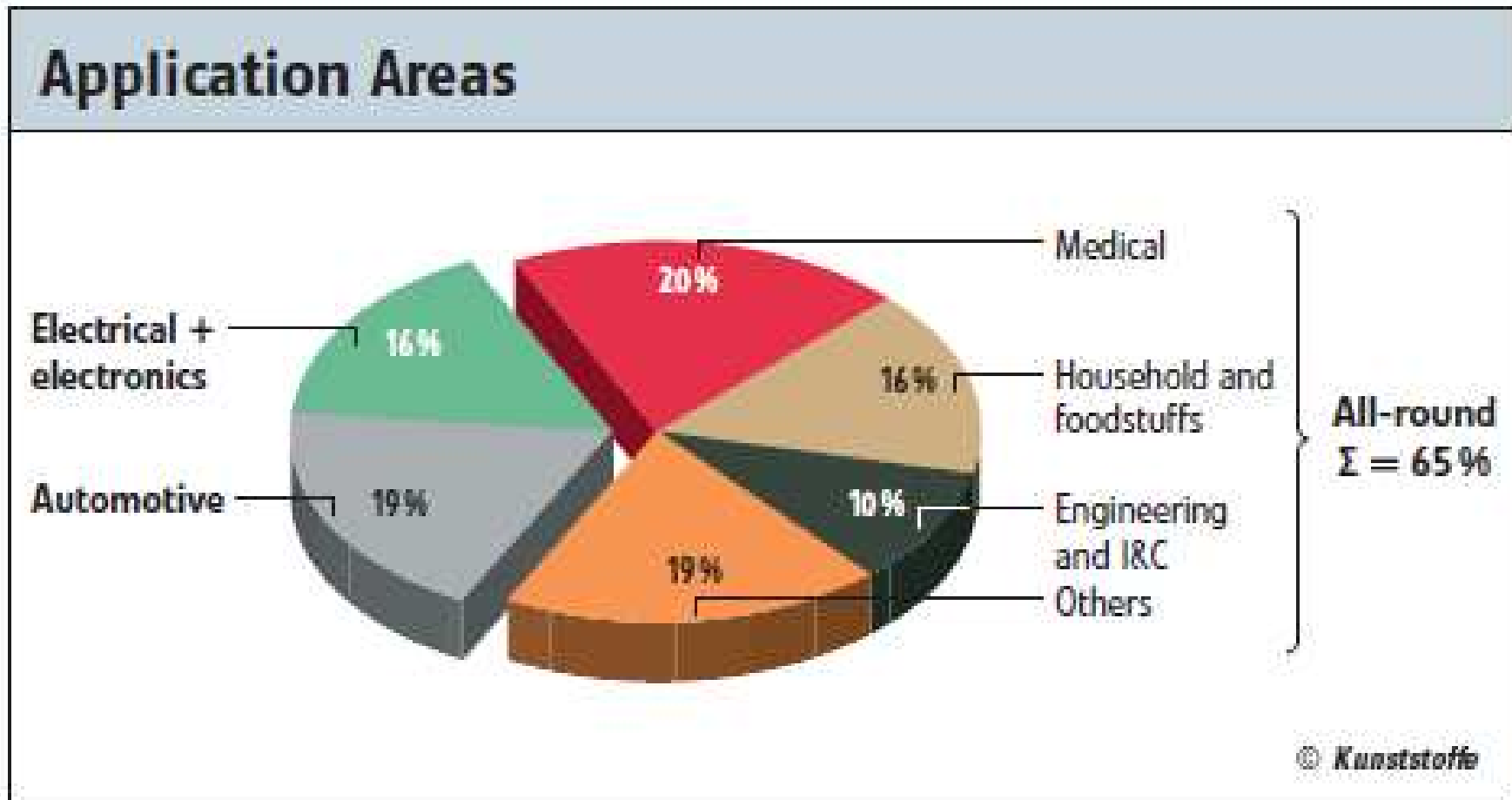
- Good flame Retardant
- Good Chemical Resistance
- Good Dimensional Stability
- High Heat Resistance
- Good Toughness
- Hydrolysis Resistant
- Acid Resistant
- Good Creep Resistance
- Good Thermal Stability

## Applications :

- Food processing equipment
- Medical instruments
- Electrical components
- Aircraft instrumentation
- Sensors and sight glasses
- Appliances



## PAES Application





# LONGLITE<sup>®</sup> Poly Aryl Ether Sulfone

PHYSICAL	ASTM Test Method	PPSU Value	PES Value	PSU Value
Density, g/cm <sup>3</sup>	D792	1.29	1.37	1.23
Molding Shrinkage, Flow, %	D955	0.7	0.80	0.7
Water Absorption, %	D570			
24hr		0.3	0.8	0.4
Equilibrium		1.1	2.2	1.2
RHEOLOGICAL	ASTM Test Method	Property Value	Property Value	Property Value
Melt Mass-Flow Rate (365 °C/5 Kg), g/10min.	D1238	10~20 (Low) 20~30 (Medium ) 30~40 (High)	40~60 (Low )* 80~100 (Medium )* 140~160 (High)*	30~40 (Low )* 40~60 (Medium )* 80~100 (High)*
MECHANICAL	ASTM Test Method	Property Value	Property Value	Property Value
Tensile Modulus, MPa	D638	>2000	>2000	>2000
Tensile strength, MPa	D638	>65	>80	>60
Yield, %	D638	>6.0	>6.0	>5.0
Break, %		60 to 100	40 to 80	40 to 80
Flexural Modulus, MPa	D790	>2200	>2200	>2200
Flexural Strength, MPa	D790	>85	>95	>90

# LONGLITE<sup>®</sup> Poly Aryl Ether Sulfone



<b>IMPACT</b>	<b>ASTM Test Method</b>	<b>Property Value</b>	<b>Property Value</b>	<b>Property Value</b>
Notched Izod Impact, J/m	D256	>650	>700	>550
<b>THERMAL</b>	<b>ASTM Test Method</b>	<b>Property Value</b>	<b>Property Value</b>	<b>Property Value</b>
Deflection Temperature Under Load 1.8MPa, Unannealed, 3.18mm °C	D648	207	195	170
Glass Transition Temperature °C	E1356	220	200	180
<b>ELECTRICAL</b>	<b>ASTM Test Method</b>	<b>Property Value</b>	<b>Property Value</b>	<b>Property Value</b>
Volume Resistivity ohm.cm	D257	>1E+13	>1E+13	>1E+13
Dielectric Constant (60 Hz)	D150	<3.6	<3.8	<3.4
<b>Flammability</b>	<b>ASTM Test Method</b>	<b>Property Value</b>	<b>Property Value</b>	<b>Property Value</b>
Flame Rating- UL (0.762mm)	UL94	V0	V0	V0



# **LONGLITE<sup>®</sup> Poly Aryl Ether Sulfone**



**LONGLITE<sup>®</sup> PAES is high heat resistance and high performance engineering thermoplastics. LONGLITE<sup>®</sup> PAES are suitable for a wide variety of aerospace, composites, automotive and medical applications.**

## **Product Characteristics:**

**High toughness**

**Excellent flame resistance**

**Excellent dimensional stability**

**Extremely high resistance to hydrolysis**

**Excellent chemical resistance**

**Long-term service temperature**

**High dielectric strength and stability**

**Low dissipation factor**



# Thermal Analyzer

**Thermal Gravimetric Analyzer  
(TA Q500)**



**Differential Scanning Calorimeter  
(TA Q200)**



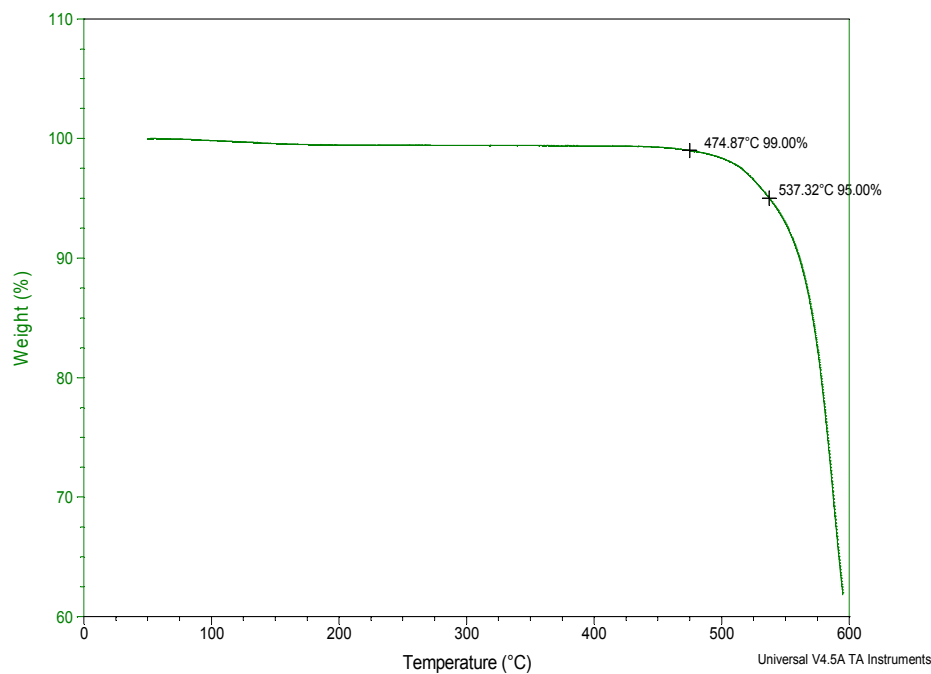
# TGA /DSC Thermal Properties

## Excellent Thermal Stability for High Temperature

Sample: PPSU-Lab wash -1006  
 Size: 9.7330 mg  
 Method: P3000-QA

TGA

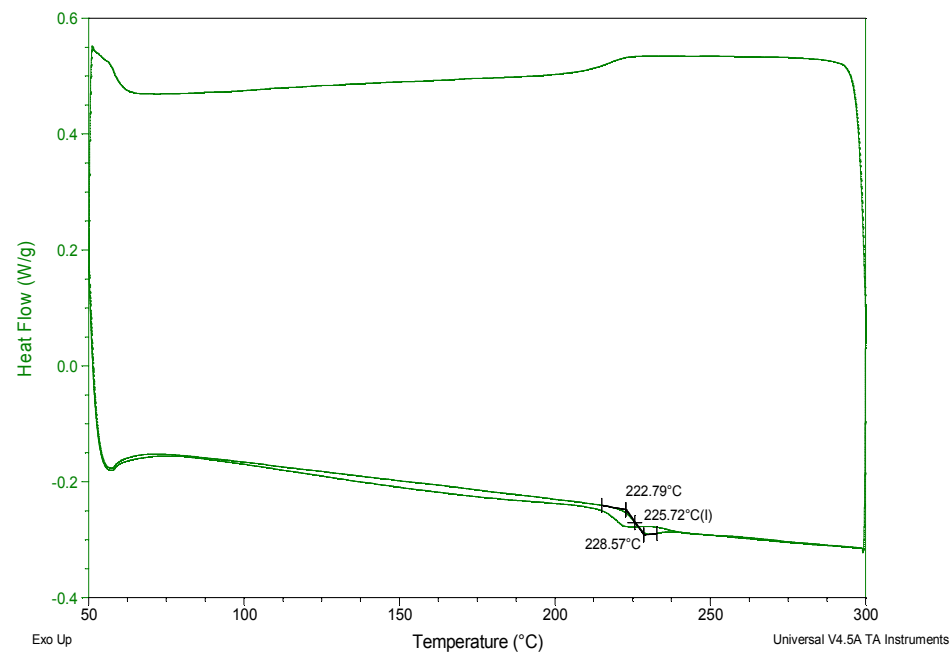
File: C:\...TGA\7HONG\PPSU-Lab wash -1006.001  
 Operator: LMY  
 Run Date: 20-Oct-2011 15:03  
 Instrument: TGA Q500 V20.10 Build 36



Sample: PPSU1031  
 Size: 9.5000 mg  
 Method: P3000-QA

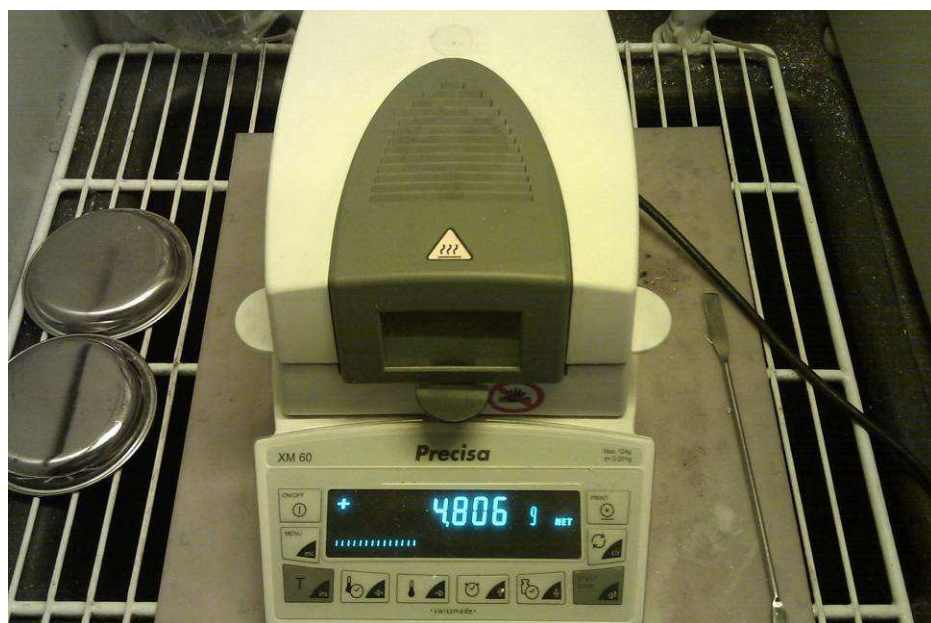
DSC

File: C:\TA\Data\DSC\7HONG\PPSU1031.001  
 Operator: LMY  
 Run Date: 25-Nov-2011 18:16  
 Instrument: DSC Q200 V24.4 Build 116



# Volatile and Ash Content Analyzer

**Volatile Content**

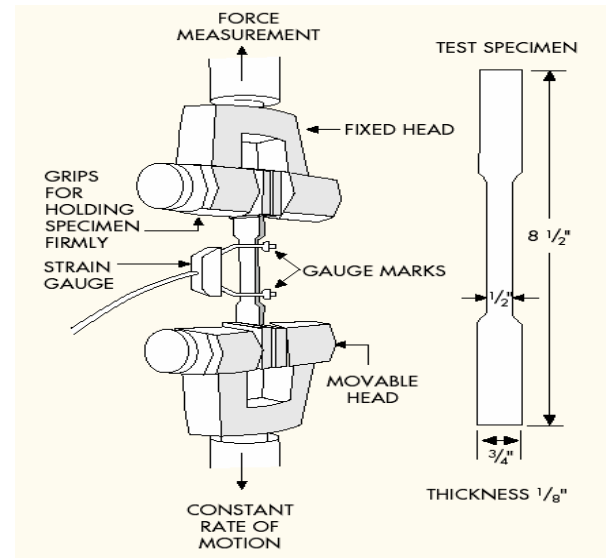


**Ash (ASTM D482)**

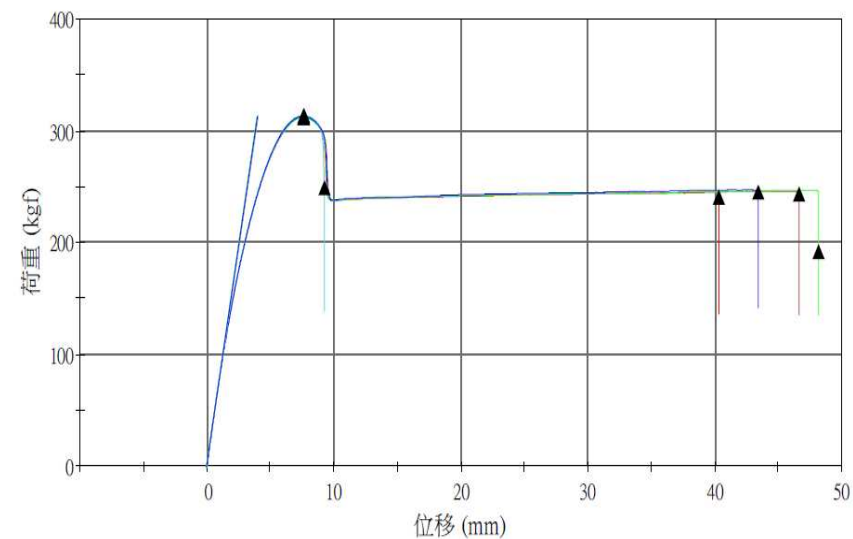


# Mechanical Properties

## Materials Testing Machines



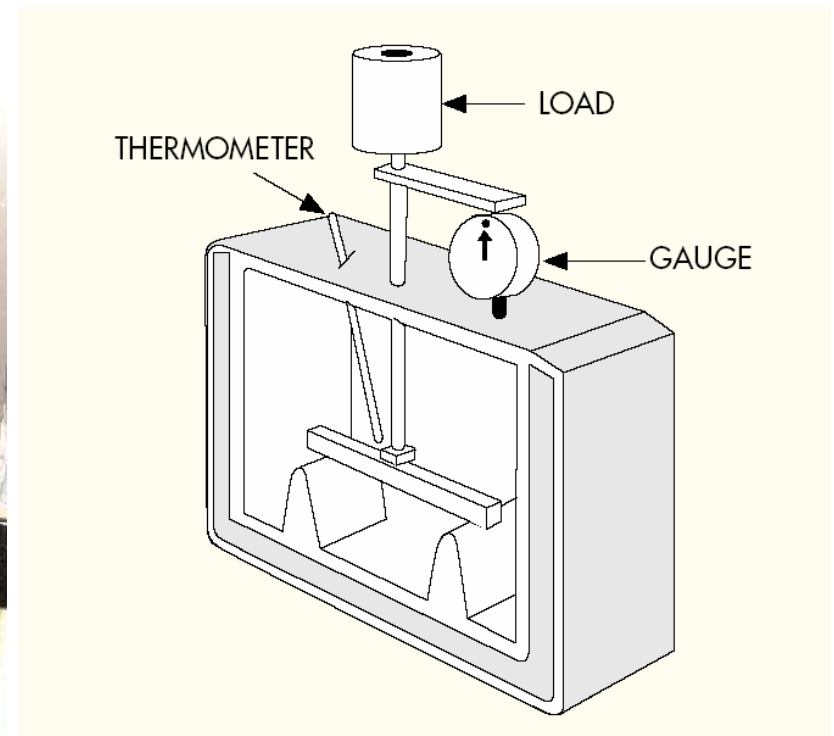
## Tensile Strength & Elongation (ASTM D638)





# Heat Deflection Temperature Tester

## Heat Deflection Temperature Tester (ASTM D648)



# Electrical Properties

**Dielectric Strength Tester  
( ASTM D149)  
>> Dielectric Strength**



**Precision Impedance Analyzer  
( ASTM D150)  
>> Dielectric Constant & Tangent**



# ICP & XRF Analyzer

Inductively Coupled Plasma –  
Atomic Emission Spectra (IEC 62321)  
>> **RoHS Requirement**

XRF  
>> **RoHS Requirement**

