

THERMAL ANALYSIS & TESTING
THERMAL STABILITY & SOFTENING
MICRODUCTS ACCESSORIES
ASTM D3418-03 (similar-ASTM D1525-17^{e1})
Accessories – Connectors/EndCap

Client: الوارد من الشركة المصرية للاتصالات لصالح شركة سفن هاندرد للأفكار الصناعية والتطوير الرقمي

Date: 29/02 /2024

Introduction:

As per the Client request for thermal testing for the microduct accessories

The thermal behaviour of the endcap and connectors have been measured by Differential Scanning Calorimeter (DSC) analysis for thermal characteristics determination of polymers and plastics to provide optimal temperature at which the materials become soft (rubbery like), along with the desired mechanical and environmental properties that face the microduct/Accessories itself.

We followed the same thermal analysis & testing procedure of ASTM D3418-03 (similar-ASTM D1525-17e1)

Verifying the Test Result

The thermal analysis was tested by recording the thermal behavior- heat flow against temperature- to determine the transition temperature/ crystallization temperature T_g and the melting temperature T_m , in between the polymers/plastics are in robbery state. Accordingly, above T_g polymers/plastics are soft and fixable like rubber due to some mobility. Therefore, the softening temperature can be easily detected.



Important Notes:

- a) The thermal analysis has determined by Differential Scanning Calorimeter (DSC) based on the approval of the client's representatives: **Telecom Egypt Company - الشركة المصرية للاتصالات**
- b) Two measurements have been carried out for each sample (five samples-10 experiments) although, all the samples have the same chemical composition but may they have different structure based on the production procedures.

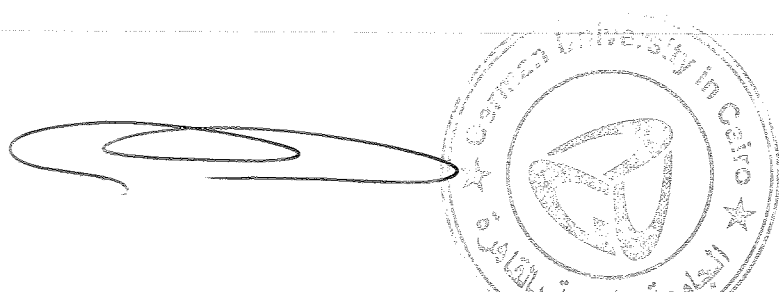
Acceptance criteria

Acceptance criteria are assigned based upon the sample type, working temperature and the standard ASTM D3418-03 (similar-ASTM D1525-17e1).

Note: above 50 C is

Test Condition and parameters

- ASTM D3418-03 (similar-ASTM D1525-17e1).
- DSC Q100: heating and cooling rates of 5 K/min
- The weight of the samples measured ranged from 3.5 mg to 5.5 mg
- heating and cooling cycles range 250 C to -30C



Thermal Analysis & Testing (DSC) Test Result – Connectors/Endcaps

#	Connectors/Endcap	Thermal Test Result °C (T _g)	Remarks
1	Connector 7 / 3.5 mm	144±2	accepted

T_g glass transition temperature

According to the Vicat test standard “ASTM D3418-03”, the softening temperature above 50 is accepted.

Document approved M. OSMAN Date 3/13/2024

Materials Testing Lab



Prof. Dr. Ahmed Abd El Aziz

تمت هذه الأختبارات للعينات الواردة من العميل دون ادنى مسؤولية على جهة الاختبار

