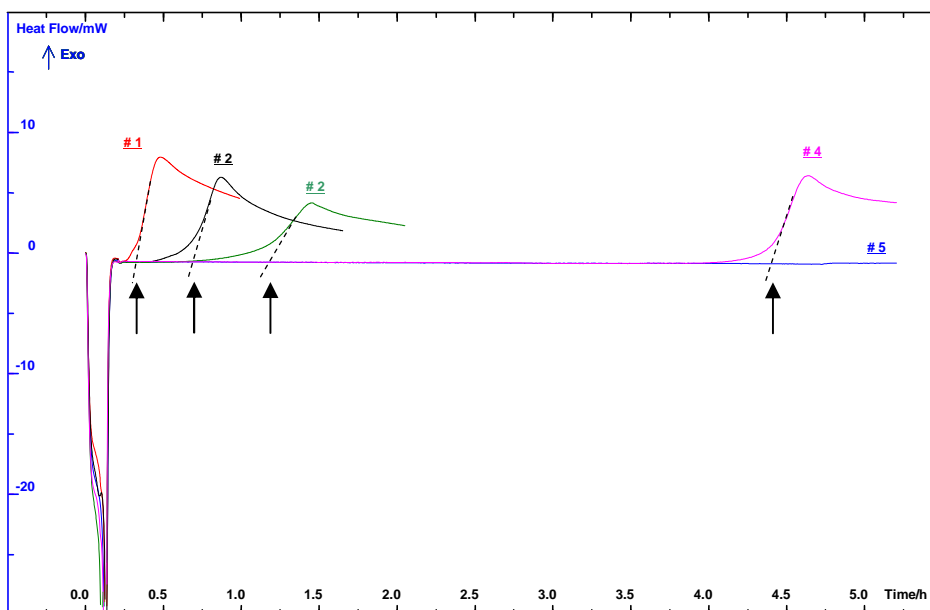


Oxidative Induction Time (OIT) of polyolefines

Introduction

The resistance to oxidative decomposition is often related to the useful lifetime of an organic or polymeric material. In order to determine the Oxidative Induction Time (OIT) by DSC, a small sample is rapidly heated up to an elevated temperature, then hold at this temperature under oxygen until an exotherm of oxidation is observed. The flexibility of DSC131 in terms of temperature variations and gas switching reveals as a powerful tool for this kind of application.



Experimental

Sample : Different formulations of polyolefines

Mass : ca 8 mg

Experimental procedure : ASTM D 3895-06

Heating up to 200°C at 20K/min under nitrogen, then hold at 200°C under oxygen.

Gas Flow : 50 mL/min

Conclusion

Five formulations are tested. Their OIT are the time elapsed at extrapolated onset of the exotherm of oxidation once oxygen flows.

The different formulations present OIT ranging from 0.1 to more than 6 hours which correspond to very different behaviors in term of oxidative stabilities.

Sample	#1	#2	#3	#4	#5
OIT (h)	0.1	0.5	0.9	4.2	>6.0

Instrument

DSC 131 evo
-170 up to 700°C



www.setaram.com – sales@setaram.com