

ISO 4504:2023-06 (E)

Plastics - Polyethylene (PE) - Determination of co-monomer content by solution state ^{13}C -NMR spectrometry

Contents

	Page
Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms, definitions, symbols and abbreviated terms	1
3.1 Terms and definitions	1
3.2 Symbols	2
3.3 Abbreviated terms	2
4 Principle	2
5 Reagents and materials	2
6 Apparatus	3
7 Preparation and preservation of test samples	3
8 Method A — Inverse gated decoupling method	3
8.1 Sample preparation	3
8.2 Procedure	4
8.3 Calculation	4
9 Method B — Inensitive nuclei enhanced by polarization transfer method	5
9.1 Sample preparation	5
9.2 Procedure	5
9.3 Calculation	6
10 Expression of results	6
11 Precision	7
12 Test report	7
Annex A (normative) Spectral integration method and integration limits outlines	8
Annex B (normative) Summary of formulae	10
Annex C (informative) Calculation example of method A	12
Annex D (informative) Calculation example of method B	14
Annex E (informative) Reference longitudinal relaxation time(T_1) values	16
Annex F (informative) Chemical shift region of branch CH-carbon of different co-monomers	19
Annex G (informative) Summary of precision data	20
Annex H (informative) Introduction to pulse program	22
Annex I (informative) Consistency validation between method A and method B	24
Bibliography	25