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AROMATIC POLYESTERIMIDES: OVERVIEW OF SYNTHESIS METHODS

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Abstract. *This article provides a literature review and summarizes information on the synthesis of polyesterimides. Systematizes modern methods of synthesis of polyesterimides and analyzes their properties, which creates a scientific basis for the development of heat-resistant composite materials of a new generation.*

Keywords: polyetherimides, polynitrosubstitution, polycondensation

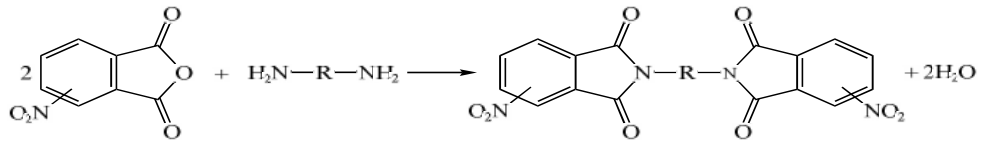
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[1]. -
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[2]. -
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Ultem,
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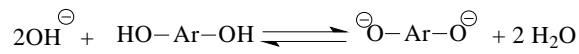
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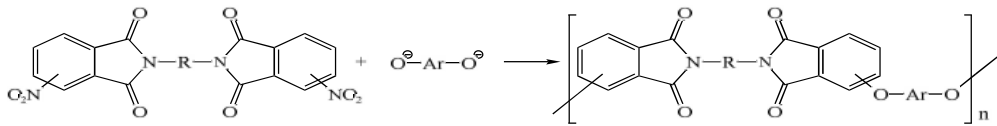
1.



2.



3.



3- 4-

92 % [5].

[6].

[5, 7, 8].

, N,N-

, N,N-

N-

[9].

[10-12].

50 °C,

4-

- 60 °C [9].

3-

22 %

5-20 %.

[13],

[9].

4-

[9, 10].

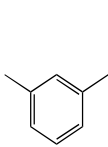
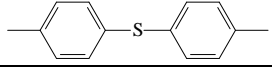
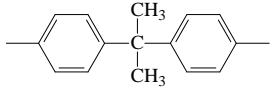
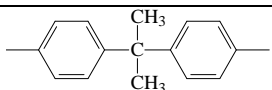
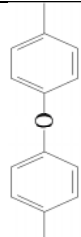
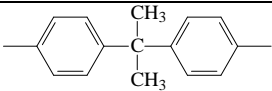
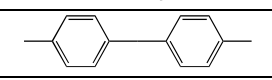
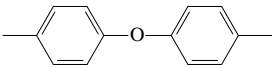
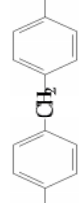
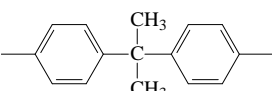
R Ar

I

[9, 14].

I –

[9, 14]

-R-		-Ar-				X, %	[], /	M _w	T _{cr} , °C
			-	T, °C	t,				
	3,3'			60	1	100	0,16	–	209
			/	55	5,25	87	0,23	21	227
	4,4'		/	80	5,5	88	0,39	35,7	–
	3,3'		/	45	0,25	97	0,61	99	–
				50	0,8	95	0,6	–	277
	4,4'			60	1	96	0,44	–	215
	3,3'		/	50	3	–	0,50	–	–
	4,4'		/	60	17	89	0,42	–	–

[15].

[16].

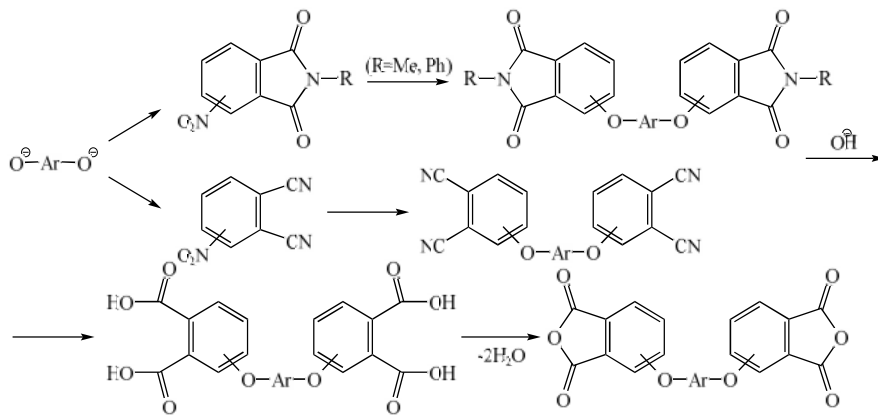
[17–19].

().

(), [9, 10, 20–23],
 [1]. [10, 20], 3- 4-
 ; [24, 25].
 N- -3-(4)-

140 °C, N,N'-

[11].



() -
 3,3', 3,4'- 4,4'- () -
 (),
 3,4'- 4,4'- ,
 . 4,4'- - () (BPADA) -

BPADA

BPADA

217 °C [26].

Tg.

(3,4-BPADA),

General Electric Company

[27].

BPADA

(NPI).

NPI

4- -N- , 3- -N-
 3 % 3-NPI 97 % 4-NPI
 6 % BPADA, 3,4- [28]. [29]

3,3'-

() 3- ,
 3,4'- 4,4'- () . [30]
 4,4'-BPADA, 3,3'-BPADA 3,4'-BPADA,

BPADA

(Tg 256 °C).

3-

3,3'-BPADA

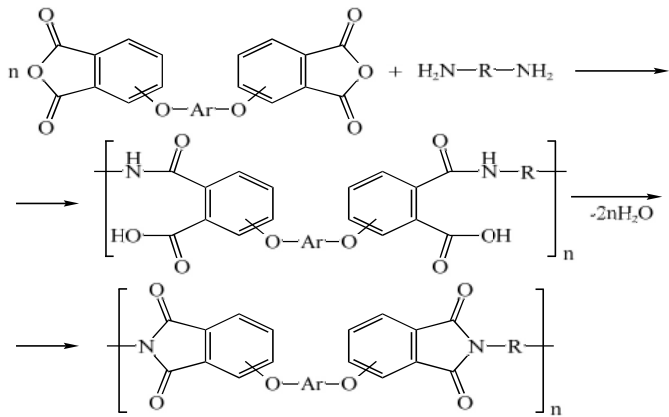
[31].

[17, 32],

[33],

[34, 35]

[35, 36].



()

[36,37]

140–200 °C [38].

2.

[4, 5, 36, 37].

[34, 36, 39].

[40].

3,3 -

[42]

[41],

410 °C.

[43, 44],

[45].

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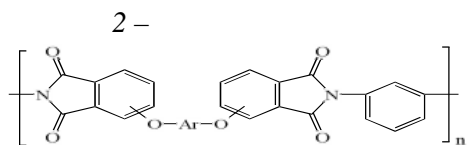
),

[31].

(1 2)

[9, 46].

2,



[1]

Ar		, (%)	[], (- , 25°) /	T _{ст} , °C
	3,3'	93,3	0,57	241
	4,4'	95,3	0,7	224
	3,3'	96	0,56	275
	4,4'	97,3	0,51	247
	3,3'	99,2	0,53	238
	4,4'	98,4	1,04	227
	3,3'	96,8	0,39	236
	4,4'	98,2	0,50	215
	3,3'	95	0,52	231
	4,4'	98,8	0,45	209
	3,3'	100	0,34	266
	4,4'	96,1	0,7	265
	3,3'	98,2	0,27	248
	4,4'	96,4	1,35	239

[47].

[48].

[49, 50].

(17,5 . %)

[53].

1)

[54]; 2)

[55, 56].

[57].

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