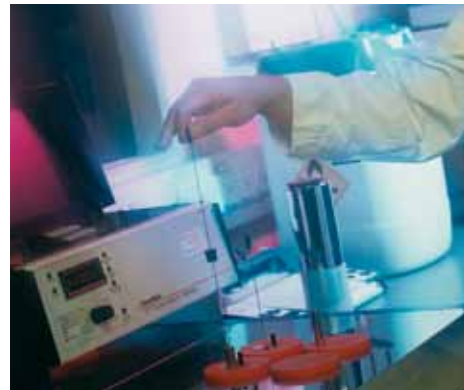


# Kinetic data



With the exception of hydroperoxides, the half-life is determined by differential scanning calorimetry-thermal activity monitoring (DSC-TAM) of a dilute solution of the initiator in monochlorobenzene. Kinetic data of the decomposition of hydroperoxides in monochlorobenzene are determined titrimetrically.

The tables in this catalog list the temperatures at which the half-lives are 0.1 hour, 1.0 hour and 10 hours.

The half-life can be calculated from the Arrhenius equation

$$k_d = A \cdot e^{-E_a/RT} \text{ and } t_{1/2} = \ln 2/k_d$$

The Arrhenius frequency factor (A) and activation energy ( $E_a$ ) are given in the tables on pages 12-29.

The residual concentration of the initiator can be calculated by means of the equation

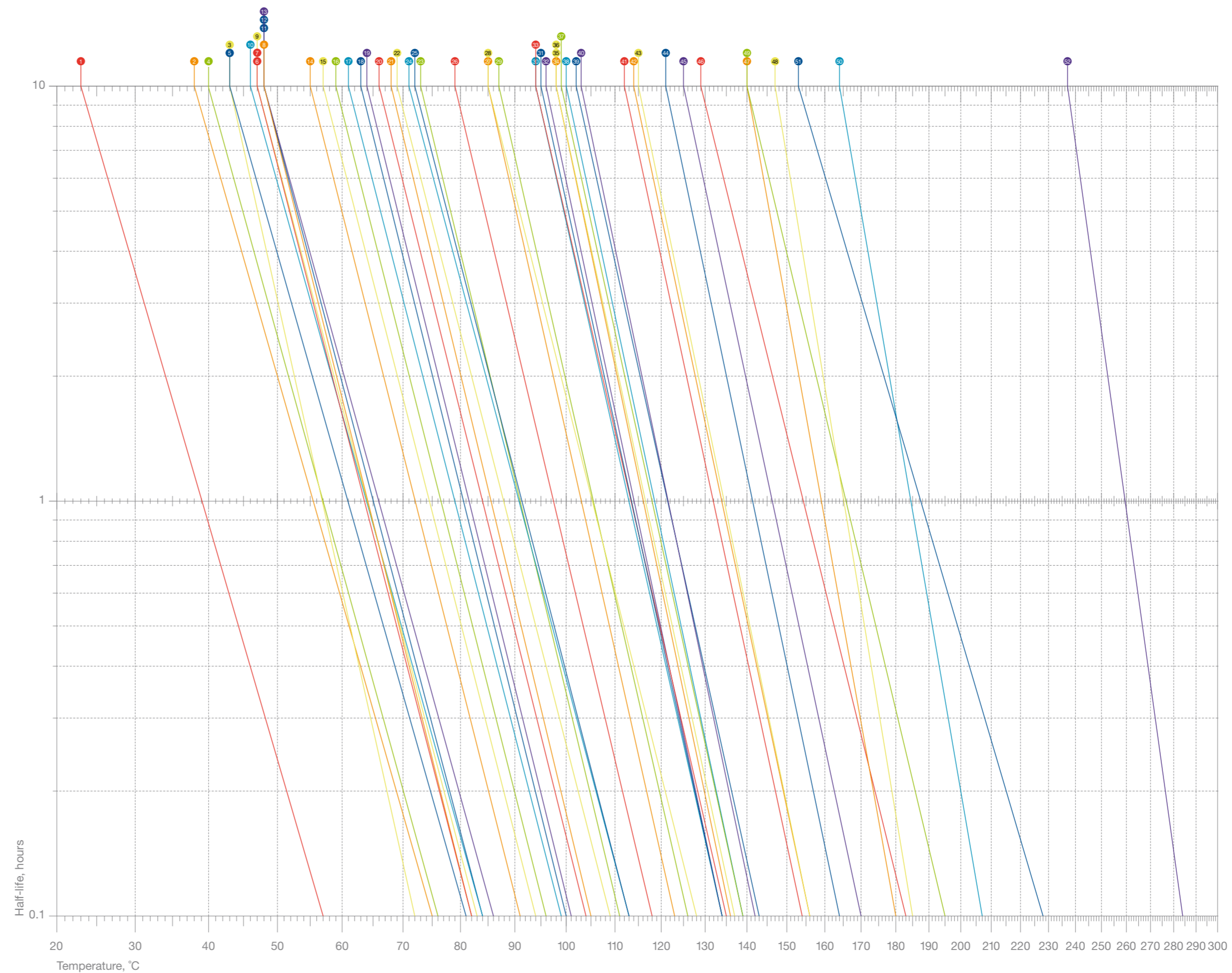
$$[I] = [I_0] \cdot e^{-k_d \cdot t}$$

The initiators in the tables on pages 12-29 are arranged in descending order of activity, based on the 1.0 hour half-life temperature.

$k_d$  = rate constant for the initiator dissociation in  $s^{-1}$   
 $A$  = Arrhenius frequency factor in  $s^{-1}$   
 $E_a$  = Activation energy for the initiator dissociation in J/mole  
 $R$  = 8,3142 J/mole.K  
 $T$  = temperature in K  
 $t_{1/2}$  = half-life in s

$[I_0]$  = original initiator concentration  
 $[I]$  = initiator concentration at time  $t$   
 $t$  = time measured from the start of decomposition in s

# Half-life chart



PRODUCT NAME	CHEMICAL NAME
1	TRIGONOX 187 Diisobutyl peroxide
2	TRIGONOX 99 Cumyl peroxyneodecanoate
3	TRIGONOX 181 Di(3-methoxybutyl) peroxydicarbonate
4	TRIGONOX 423 1,1,3,3-Tetramethylbutyl peroxyneodecanoate
5	TRIGONOX 123 tert-Amyl peroxyneodecanoate
6	TRIGONOX SBP Di-sec-butyl peroxydicarbonate
7	PERKADOX IPP Diisopropyl peroxydicarbonate
8	PERKADOX 16 Di(4-tert-butylcyclohexyl) peroxydicarbonate
9	TRIGONOX EHP Di(2-ethylhexyl) peroxydicarbonate
10	TRIGONOX 23 tert-Butyl peroxyneodecanoate
11	PERKADOX 24 Dicetyl peroxydicarbonate
12	PERKADOX 26 Dimyristyl peroxydicarbonate
13	TRIGONOX 425 1,1,3,3-Tetramethylbutyl peroxy-pivalate
14	TRIGONOX 125 tert-Amyl peroxy-pivalate
15	TRIGONOX 25 tert-Butyl peroxy-pivalate
16	TRIGONOX 36 Di(3,5,5-trimethylhexanoyl) peroxide
17	LAUROX Dilauroyl peroxide
18	PERKADOX SE-10 Didecanoyl peroxide
19	PERKADOX AIBN 2,2'-Azodi(isobutyronitrile)
20	PERKADOX AMBN 2,2'-Azodi(2-methylbutyronitrile)
21	TRIGONOX 141 2,5-Dimethyl-2,5-di(2-ethylhexanoylperoxy)hexane
22	TRIGONOX 421 1,1,3,3-Tetramethylbutyl peroxy-2-ethylhexanoate
23	TRIGONOX 121 tert-Amyl peroxy-2-ethylhexanoate
24	PERKADOX L / CH Dibenzoyl peroxide
25	TRIGONOX 21 tert-Butyl peroxy-2-ethylhexanoate
26	TRIGONOX 41 tert-Butyl peroxyisobutyrate
27	PERKADOX ACCN 1,1'-Azodi(hexahydrobenzotrile)
28	TRIGONOX 29 1,1-Di(tert-butylperoxy)-3,3,5-trimethylcyclohexane
29	TRIGONOX 122 1,1-Di(tert-amylperoxy)cyclohexane
30	TRIGONOX 22 1,1-Di(tert-butylperoxy)cyclohexane
31	TRIGONOX 131 tert-Amylperoxy 2-ethylhexyl carbonate
32	TRIGONOX 133 tert-Amyl peroxyacetate
33	TRIGONOX 42 tert-Butyl peroxy-3,5,5-trimethylhexanoate
34	TRIGONOX D 2,2-Di(tert-butylperoxy)butane
35	TRIGONOX BPIC tert-Butylperoxy isopropyl carbonate
36	TRIGONOX 117 tert-Butylperoxy 2-ethylhexyl carbonate
37	TRIGONOX 127 tert-Amyl peroxybenzoate
38	TRIGONOX F tert-Butyl peroxyacetate
39	TRIGONOX 17 Butyl 4,4-di(tert-butylperoxy)valerate
40	TRIGONOX C tert-Butyl peroxybenzoate
41	PERKADOX BC Dicumyl peroxide
42	PERKADOX 14 Di(tert-butylperoxyisopropyl)benzene(s)
43	TRIGONOX 101 2,5-Dimethyl-2,5-di(tert-butylperoxy)hexane
44	TRIGONOX B Di-tert-butyl peroxide
45	TRIGONOX 301 3,6,9-Triethyl-3,6,9-trimethyl-1,4,7-triperoxonane
46	TRIGONOX M Isopropylcumyl hydroperoxide
47	TRIGONOX TMBH 1,1,3,3-Tetramethylbutyl hydroperoxide
48	TRIGONOX 311 3,3,5,7,7-Pentamethyl-1,2,4-trioxepane
49	TRIGONOX K Cumyl hydroperoxide
50	TRIGONOX A tert-Butyl hydroperoxide
51	TRIGONOX TAHP tert-Amyl hydroperoxide
52	PERKADOX 30 2,3-Dimethyl-2,3-diphenylbutane