



# ROFLAM SERIES

FLAME RETARDANTS  
FOR ONE COMPONENT FOAM

**ROFLAM** products are effective phosphorus-based flame retardants recommended as an effective solution for various polyurethane applications, including one-component foams. These specialty additives enable to successfully meet flame retardancy requirements, including class E in accordance with EN 13501-1 and class B2 in accordance with DIN 4102. Roflam B range provides particularly excellent viscosity reduction, optimal foam application and desirable physical properties all at once, as does Roflam P (TCPP).

## MAIN FEATURES

- Liquid form
- Low viscosity
- Very low acid number
- Non-reactive

## MAIN ADVANTAGES

- Good flammability performance
- Efficient viscosity reduction
- Easily processed in PU foaming
- Negligible influence on mechanical properties of PU foams
- Giving a choice between high fire-resistance performance and improved GHS safety statements

## TYPICAL PROPERTIES

Product name	Chemical name	Appearance	Viscosity (at 25°C)	Density (at 25°C)	Phosphorus content	Chlorine content	Water content
		visual method	EN ISO 12058	EN ISO 2811	based on composition (GC-MS analysis)	based on composition (GC-MS analysis)	ISO 760
		—	mPa·s	g/cm <sup>3</sup>	% (w/w)	% (w/w)	% (w/w)
<b>Roflam P</b> (HIGH EFFICIENCY)	tris(2-chloro-1-methylethyl) phosphate		66	1.28	9.5%	32.5	< 0.1
<b>Roflam B7</b> (HALOGEN FREE)	tert-butylphenyl-phenyl phosphate	transparent, colourless to slightly yellow liquid	72	1.18	8.5%	—	< 0.1
<b>Roflam B7L</b> (HALOGEN FREE) (no GHS class.)			310	1.12	7.4%	—	< 0.1

## PRODUCT PERFORMANCE

	Form. 1		Form. 2		Form. 3	
	Roflam P	14.7%*	Roflam B7	14.7%*	Roflam B7L	17.0 %*
Foam properties	Form. 1		Form. 2		Form. 3	
<b>Fire test</b> DIN 4102, class B2 / EN 13501-1, class E	pass		pass		pass	
<b>Fire test</b> ISO 4589-2, Limited Oxygen Index	23.3%		21.5%		21.6%	
<b>Compression strength, 168h</b>	26.9 kPa		34.1 kPa		38.5 kPa	
<b>Shrinkage wet</b> Max After 336h	-8.5% 3.4%		-4.1% -1.1%		-0.4% -0.1%	
<b>Shrinkage dry</b> Max After 336h	2.8% 2.9%		1.2% 1.8%		0.0% 0.0%	
<b>Yield in mould</b> 600g 750g	33.3 L 41.6 L		29.5 L 36.9 L		32.8 L 40.1 L	
<b>Post expansion</b>	105%		106%		106%	

\* amount per net mass of foam