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Facts about Fire and EPS

As with many construction materials, EPS must be considered combustible, and its fire behavior depends on the type of material and its application conditions. It is very important to distinguish between the two commonly used grades of EPS.

Non flame retardant EPS - typically used in packaging, will sustain combustion and the resultant fire spread at a rate of about 3cm per minute over the surface. This is comparable to other combustible solid materials. EPS does not catch fire spontaneously, and small sources of ignition will not ignite it.

Flame retardant EPS - used in many construction materials including products manufactured by Polycore Canada Inc., includes a flame retardant that reduces the flammability and spread of flame on the surface of EPS products. If ignited with a flame, the EPS extinguishes itself as soon as the ignition flame is removed.

Smoke and Dangerous Gas Emissions - The burning of EPS is less harmful than burning timber and many other commonly used building materials. The gases released during combustion are predominantly carbon dioxide and carbon monoxide. Tests carried out in accordance with European Standard DIN 53436 show that the levels of dangerous gases are considerably less than those occurring when burning timber.

Note: The highlighted portion of the table below indicates the EPS product used by Polycore Canada in its Polycore Freeform® building systems products

Type of Test Piece	Constituents of The Fire Gases	Fire Gas Composition in ppm			
		At Test Temperature of			
		300C	400C	500C	600C
Standard EPS	Carbon Monoxide	50*	200*	400*	1000**
	Styrene Monomer	200	300	500	50
	Other Aromats	Traces	10	30	10
	Hydrogen Bromide	0	0	0	0
Flame Retardant EPS	Carbon Monoxide	10*	50*	500*	1000**
	Styrene Monomer	50	100	500	50
	Other Aromats	Traces	20	20	10
	Hydrogen Bromide	10	15	13	11
Pine Wood	Carbon Monoxide	400*	6000**	12000**	15000**
	Aromats				300
Insulating Softboard	Carbon Monoxide	14000**	24000**	59000**	69000**
	Aromats	Traces	300	200	1000
Expanded Cork	Carbon Monoxide	1000*	3000**	15000**	29000**
	Aromats	Traces	200	1000	1000

* Smoldering Fire ** Flame Fire

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Early Fire Hazard Properties - Testing in accordance with AS 1530.3-1982 to determine early fire hazard properties shows that EPS compares favorably with many timbers in most categories.

Comparative Testing of some Materials to AS 1530.3 - 1982				
Test for early fire hazard properties of materials				
		Flame	Heat	Smoke
	Ignitability	Spread	Evoloved	Developed
Material	Index 0-20	Index 0-10	Index 0-10	Index 0-10
EPS(i)	12	0	3	5
Softboard (ii)	16	9	7	3
Oregon (ii)	13	6	5	3
Bluegum (ii)	11	0	3	2
Radiata Pine (iii)	14	8	9	3
Hardboard (iii)	14	7	9	5

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