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Density Cross Reference

Density is the most common definition of a foam grade; it means the weight of the foam per a given volume. For example, “4 lb” foam has a weight of 4 pounds per cubic foot, abbreviated to 4 lb/ft3, and then simply to “4 lb”. In North America, the “lb” designation is by far the most commonly used. However, there are four different ways that the same density foam might be called out on a drawing. In rough order of occurrence of the terms on North American drawings:

- 4 lb, or 4lb/ft3, meaning 4 pounds per cubic foot
- 64 kg, or 64 kg/m^3, meaning it weighs 64 kilograms per cubic meter
- 0.064 specific density, or 0.064g/cc, meaning it weighs 0.064 grams per cubic centimeter. Water weighs exactly 1g/cc, so this foam weighs 0.064 times the weight of water
- 15x expansion ratio, meaning the plastic has been expanded to 15 times of it’s original volume

All densities of foam can be expressed in all four units of measure. Just like a 2 liter bottle of a soft drink also can be said to have 67.6 fluid ounces, the same 4 lb/ft3 foam can also be said to be 64 kg/m3.

Unit	LB	Kg	Specific density	Expansion ratio
Description	lb/ft3 Pounds per cubic foot	Kg/m3 Kilograms per cubic meter	g/cc Grams per cubic centimeter	Factor of Volume expansion during foaming
Factor	1	16.02	0.016	58.4
Density	1.3	21	0.021	45
	1.5	24	0.024	39
	1.7	27	0.027	34
	1.9	30	0.030	31
	2	**32**	**0.032**	**29**
	2.2	35	0.035	27
	2.3	37	0.037	25
	2.8	45	0.045	21
	3	48	0.048	19
	3.8	61	0.061	15
	4	**64**	**0.064**	**15**
	5	80	0.080	12
	6	**96**	**0.096**	**10**
	8	128	0.128	7
	9	144	0.144	6
	15	240	0.240	4