User Data:

Date:8-Apr-2015 **Time:22:15:21** **File: xpert 6mm ppc 68 gr.dat**

Cartridge / Caliber	**6 mm PPC**		**Bullet**	**.243, 68, XPERT Bullet**	
Maximum Average Pressure, allowed	58740 psi.	4050 bar (Piezo CIP)		with flatbase	
Groove Caliber	0.243 in.	6.17 mm	Bullet Weight	68.0 gr.	4.41 gm
Case Capacity, overflow	33.01 gr. H2O	2.143 cm³	Bullet Length	1.031 in.	26.2 mm
Case Length	1.505 in.	38.23 mm	Bullet Seating Depth	0.450 in.	11.43 mm
Cartridge O.A. Length	2.087 in.	53.01 mm	Barrel/Tube Length	24.0 in.	609.6 mm
Shot Start / Init Pressure	3625 psi.	249.94 bar	Cross Section Area of Bore	0.04576 in.²	0.2952 cm²
Propellant type	**Somchem S321**				
Charge Weight	27.0 gr.	1.75 gm	Load Density	245.8 gr./in.³	0.972 gm/cm³
Heat of Explosion, Potential	259.8 J/gr.	4010 J/gm	Energy Density of Charge	63893 J/in.³	3899 J/cm³
Propellant Solid Density	409.68 gr./in.³	1.62 gm/cm³	Used Ratio of Specific Heats cp/cv	1.221	
Burning Rate Factor Ba	0.56 1/s		Weighting Factor	0.5	
Burning Function Limit Z1	0.39		Prog.-/ Degressivity Factor a0	1.649	
Factor b	1.641		Bulk Density	250.4 gr./in.³	0.990 gm/cm³

Calculated and Estimated Data:

Bullet Shank Seating Depth	0.45 in.	11.43 mm	Capacity Displaced by Seated Bullet	0.0209 in.³	0.343 cm³
Useable Case Capacity	0.1099 in.³	1.8 cm³	Bullet Travel at Muzzle Exit	22.94 in.	582.8 mm
Loading Ratio("Density") / Filling	98.2 %		Charge Fraction Burnt at Shot Start	1.16 %	
Predicted Data:					
Maximum Chamber Pressure	43243 psi.	2982 bar	Bullet Travel at Pmax	1.40 in.	35.4 mm
at Muzzle Exit:					
Bullet Velocity	2984 fps.	909.7 m/s	Pressure at Muzzle	6331 psi.	436 bar
Bullet Energy	1345 ft.lbs.	1823 Joule	Bullet Barrel Time	1.107 ms	
Propellant Burnt	91.6 %		Ballistic Efficiency	26.0 %	

Check Loading Manuals for Safe Minimum Charge Weight to Avoid Hazardous Ignition Conditions like Secondary Explosion Effects !
Real maximum (peak) of pressure is reached while bullet moves within barrel.
End of combustion occurs after the bullet's base passes muzzle.