User Data:

Date:8-Apr-2015 **Time:22:03:04** **File: xpert 243 win 68 gr.dat**

Cartridge / Caliber	**.243 Win.**		**Bullet**	**.243, 68, XPERT Bullet**	
Maximum Average Pressure, allowed	60191 psi.	4150 bar (Piezo CIP)		with flatbase	
Groove Caliber	0.243 in.	6.17 mm	Bullet Weight	68.0 gr.	4.41 gm
Case Capacity, overflow	54.0 gr. H2O	3.506 cm³	Bullet Length	1.031 in.	26.2 mm
Case Length	2.044 in.	51.92 mm	Bullet Seating Depth	0.438 in.	11.13 mm
Cartridge O.A. Length	2.638 in.	67.0 mm	Barrel/Tube Length	24.0 in.	609.6 mm
Shot Start / Init Pressure	3625 psi.	249.94 bar	Cross Section Area of Bore	0.04534 in.²	0.2925 cm²
Propellant type	**Somchem S365**				
Charge Weight	44.0 gr.	2.851 gm	Load Density	227.3 gr./in.³	0.899 gm/cm³
Heat of Explosion, Potential	238.8 J/gr.	3685 J/gm	Energy Density of Charge	54274 J/in.³	3312 J/cm³
Propellant Solid Density	404.63 gr./in.³	1.6 gm/cm³	Used Ratio of Specific Heats cp/cv	1.239	
Burning Rate Factor Ba	0.44 1/s		Weighting Factor	0.65	
Burning Function Limit Z1	0.605		Prog.-/ Degressivity Factor a0	1.715	
Factor b	2.271		Bulk Density	231.4 gr./in.³	0.915 gm/cm³

Calculated and Estimated Data:

Bullet Shank Seating Depth	0.438 in.	11.13 mm	Capacity Displaced by Seated Bullet	0.0204 in.³	0.334 cm³
Useable Case Capacity	0.1936 in.³	3.172 cm³	Bullet Travel at Muzzle Exit	22.39 in.	568.81 mm
Loading Ratio("Density") / Filling	98.2 %		Charge Fraction Burnt at Shot Start	1.38 %	
Predicted Data:					
Maximum Chamber Pressure	45421 psi.	3132 bar	Bullet Travel at Pmax	2.90 in.	73.7 mm
at Muzzle Exit:					
Bullet Velocity	3314 fps.	1010.2 m/s	Pressure at Muzzle	9812 psi.	677 bar
Bullet Energy	1658 ft.lbs.	2248 Joule	Bullet Barrel Time	1.137 ms	
Propellant Burnt	99.3 %		Ballistic Efficiency	21.4 %	

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.