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WARNING: Since we have no control over equipment or data which may be used with this program, no responsibility is implied or assumed for results obtained through its use. Input data and results may be incorrect or wrong. Therefore the use of this data for loading ammunition can cause serious injury to personnel and material. The computer-results had to be checked against data available in current loading manuals.

LOT-TO-LOT VARIATIONS OF POWDERS, PRIMER SUBSTITUTION AND COMPONENT CHANGE OFTEN RAISE PRESSURES TO UNSAFE LEVELS. THE USER MUST ASSUME THE ENTIRE RISK OF USING THIS DATA FOR LOADING PURPOSES.

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User Data:	Date:8-Apr-2015	Time:21:37:57	File: xpert 220 swift 42gr.dat	
Cartridge / Caliber	.220 Swift	Bullet	.224 42GR XPERT	
Maximum Average Pressure, allowed	62366 psi.	4300 bar (Piezo CIP)	with flatbase	
Groove Caliber	0.224 in.	5.69 mm	Bullet Weight	42.0 gr. 2.72 gm
Case Capacity, overflow	47.0 gr. H2O	3.052 cm ³	Bullet Length	0.772 in. 19.6 mm
Case Length	2.205 in.	56.01 mm	Bullet Seating Depth	0.300 in. 7.62 mm
Cartridge O.A. Length	2.677 in.	68.0 mm	Barrel/Tube Length	24.0 in. 609.6 mm
Shot Start / Init Pressure	3625 psi.	249.94 bar	Cross Section Area of Bore	0.0388 in. ² 0.2503 cm ²
Propellant type	Somchem S341			
Charge Weight	40.0 gr.	2.592 gm	Load Density	229.4 gr./in. ³ 0.907 gm/cm ³
Heat of Explosion, Potential	237.2 J/gr.	3660 J/gm	Energy Density of Charge	54389 J/in. ³ 3319 J/cm ³
Propellant Solid Density	409.68 gr./in. ³	1.62 gm/cm ³	Used Ratio of Specific Heats cp/cv	1.242
Burning Rate Factor Ba	0.56 1/s		Weighting Factor	0.4
Burning Function Limit Z1	0.45		Prog.-/ Degressivity Factor a0	0.74
Factor b	1.557		Bulk Density	250.4 gr./in. ³ 0.990 gm/cm ³

Calculated and Estimated Data:

Bullet Shank Seating Depth	0.3 in.	7.62 mm	Capacity Displaced by Seated Bullet	0.0118 in. ³	0.194 cm ³
Useable Case Capacity	0.1744 in. ³	2.858 cm ³	Bullet Travel at Muzzle Exit	22.1 in.	561.21 mm
Loading Ratio("Density") / Filling	91.6 %		Charge Fraction Burnt at Shot Start	1.37 %	

Predicted Data:

Maximum Chamber Pressure	48245 psi.	3326 bar	Bullet Travel at Pmax	2.43 in.	61.8 mm
at Muzzle Exit:					
Bullet Velocity	3923 fps.	1195.7 m/s	Pressure at Muzzle	10244 psi.	706 bar
Bullet Energy	1435 ft.lbs.	1946 Joule	Bullet Barrel Time	0.925 ms	
Propellant Burnt	93.3 %		Ballistic Efficiency	20.5 %	

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.

