WASC 2335

Test Forms
for Polybutadiene
Propellants

Form PB/4

POLYBUTADIENE PROPELLANTS

HOUNSFIELD TEST - PROPELLANT CURED IN MOULDS

Composition No. Batch No. Date of Manufacture

Magnification Speed inch/min

Special Notes

Date of Test	Cured		Test Temp °C	Beam lb	% Elong. at MS E_1	% Elong. at MS E_2	% Elong. after 1 hr	Max. Load lb	Max. Stress kN/m^2	Y.Mod kN/m^2
	Time	Temp °C								

Form PB/6

POLYBUTADIENE PROPELLANTS

HOUNSFIELD TEST - STORAGE TRIAL

Composition No. Batch No. Date of Manufacture

Previous Cure History days/weeks at °C

Date Storage Trial Started Temperature of Storage °C

Other Details of Storage

Magnification Speed inch/min

Special Notes

Date of Test	Time of Storage	Test Temp °C	Beam lb	% Elong. at MS E_1	% Elong. at MS E_2	% Elong. after 1 hr.	Max. Load lb	Max Stress kN/m^2	Y. Mod kN/m^2

Form PB/9

SPECIFIC SURFACE DETERMINATIONS

FOR WEEK BEGINNING

Material	Propellant Batch or Drum/Tray Details	Date Supplied	Date of Detn.	Specific Surface, cm^2/cm^3			
				1	2	3	Average

Form PB/10

Material

Date

Room temperature =

Log viscosity (η) = $\bar{4}$.

Powder Bed Dimensions (D)

Tube + bed =

Tube only = _____

D =

$\epsilon = \frac{(D-d)^*}{D}$

log (D-d)* =

- log D = _____

log ϵ =

ϵ =

(1- ϵ) =

Pressure head across bed (H) = cm/water

Air flow through bed

(a) Stop watch method (P757 lab)

Volume passed (V) = cc Time = seconds

Deduct correction for empty tube = seconds
(if unmilled) _____

T = seconds

(b) Flowmeter method (P721 lab). Capillary no.

1. Manometer height cm/H_2O = seconds

2. Manometer height cm/H_2O = _____ seconds (if unmilled)

Volume (V) = 1000 cc T = _____ seconds

$$S_o = 14\sqrt{\frac{\epsilon^3 \times T \times A \times H}{(1-\epsilon)^2 \times \eta \times V \times D}}$$

Numerator

No.	log.	
ϵ	$\bar{1}$	
	X3	
ϵ^3		
T		
A	0	1035
H		
num.		
denom.		
÷2		
+ log 14	1	1461
log S_o		

Denominator

No.	log.	
1 - ϵ	$\bar{1}$	
	X2	
$(1-\epsilon)^2$		
η	$\bar{4}$	
V		
D	0	
denom =		

SPECIFIC SURFACE =

* If 2.48 gm ammonium perchlorate used, d = 1. (for 0.5 inch diam. tube)