ATTACHMENT D



Scaled Distance Blasting Vibration Calculation PPV = K(SD)-b

Online documentation

Parameter Variations

Additional Notes

Tips Beference Disclaimer

Calculat

To use: Type in your desired values for each parameter. All are required. Standard parameter values are shown column tites in bold Italic. It is recommended that you use the standard values unless you have specific need to change them. Add tonal parameter cerebrations may be entered in gray cets, but variations in parameters will only be calculated for first data row You can separately choose metric or U.S. units or each data conversed them. Add tonal parameter are standard values are supported for each data conversed to the results of syaring emperamenter in the first data row, lawing the others constant. Cets in which you should not input or change information are facted. Values in U.S. units appear in blue; these in metric units appear in greezs. Results or parameters which exceed U.S. OSII inits will appear in blue; these in the calculation for these inits. PPV results should be applyed with at less at 2s as affectly factor, to take into account firmitations of the calculation approach and accuracy. When basising when basing in monitoring is done, the measured PPV is should be the determinant of charge weights, not these calculated estimates.

-	Parameters					Messages	Calculation Results				
input units (f - U.S., 2 -	Charge Weight per delay (b.	square root (0.5); cube	Distance from charge ((typically 1.6;	Confinement factor (K) (Metric units - typical 1140, range 500- 5000); U.S. units typical 150, range 20-600)		Peak particle velocity, PPV (in/sec or mm/sec)	Scaled distance (SD, Ds) (ft/(lb^0.5 or nt/(kg^0.5)	allowedw/o monitoring (per U.S. OSM	charge weight allowed w/ monitoring (per U.S. OSM PPV limits) (b or	Minimum vibration safe distance (based on U.S. OSM PPV limits wi monitoring) (t. or m)
1	2.5	0.5	660	1.8	160		0.00	417.4	144.0	1549.1	46111881
-	2.3	0.5	000	1,0	100)		0.00	417.4	144.0	1549.1	#NUM!
1	2	0.5	660	1.8	160		0.00	466.7	144.0	1549.1	#NUM!
1	0.5	0.5	660	1.8	160		0.00	933.4	144.0	1549.1	#NUM!
			HOUSE IN						<u> </u>		<u> </u>
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	0										

Parameter Variations (leaving all others constant) for first data row only

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	Chosen 12/195 rece	ated in first o	av belav	variations !	loso

Vary charge weight (Ibs)	Calculated PPV (In/sec)	Vary distance (fi)	Calculated	Vary expensent b	Calculated PPV		Calculated PPV (in/sec)		Calculated PPV (In/sec)
2.5	Ø000	660	0.000	1.8	0.000	160	0.000	0.5	0.000
5	0.006	50	0.319	0.6	4 283	20	0.000	0.5	0.003
10	0.011	100	0.092	0.7	2 3 1 3	50	0.001	0.33	0,002
20	0.020	150	0.044	0.8	1.281	100	0.002		
50	0.046	200	0.026	0.9	0.701	150	0.003		
100	0.085	250	0.018	1	0.383	200	0 004		
150	0.122	300	0.013	1.1	0.210	250	0.005		
200	0.158	350	0.010	1.2	0.115	300	0.006	l .	
250	0.194	400	0.003	1.3	0.063	350	0.007		
300	0 228	450	0.006	1.4	0.034	400	0.008		
350	0 262	500	0.005	1.5	0.019	450	0.009		
400	0 296	550	0.004	1.6	0.010	500	0.010		
450	0.329	600	0.004	1.7	0.006	550	0.011	1	
500	0.361	650	0.003	1.8	0.003	600	0.012	1	
550	0.334	700	0.003	1.9	0.002	650	0.012		
600	0.426	750	0.002	2	0.001	700	0.013		

Additional Notes

Abhough scaled distance calculations are most commonly used for blasting interaction, they have also been shown to be valuable in construction valuations from equipment. You can use the calculator in those settings as well, if you have the source energy parmeters (equivalent to the charge weights) and the correspondingly values.

Safe distances are not calculated here because blasting limits are frequency-dependent. Scaled distances less than the U.S. OSI/Limits are considered "unsafe" from a vilvation standpoint. They are flagged in bold fixalle, when they occur. Blasting vication PPV's in excess of the U.S. OSI/Limits for montared blasts are similarly highlighted. The limits are for single blasts those for multiple blasts should be somewhatelower, as multiple blasts increase the dismage probabity. PPV results should be calculated as a 2x safety factor, to take into account limitations of the calculation approach and accuracy.

If you plan to use the same eparameter values for multiple or all calculations, select the parameter ce²(s) that have the value you want and use the drag handle at the lower right of the cell to drag the same value down the column. Choose if all without formatting from the dropdown fill menu. This trick is particularly useful for those parameters (units, charge weight scaling, be expended and K facter) which offere remain at the default values. Shown in the first row, Remember that you must use a finder of the cerest clust hype for your chesen units. To clear data, you can use the drag handle to select the data you want to delete, then press the DMB key, it is recommended that you NOT delete parameters in the first data row, although you can

Reference

U.S. Blasting Limits USBM RI8507 Mid-frequency suggested	Max PPV (In/sec)	Mac PPV (minisec)	
Homes with plaster walls	0.5	0	12
Homes with plaster wa≅s Homes without plaster walls	0.5 0.7		12

U.S. OSM Blasting Regulations			(05 charge weight scaling factor required)			
Distance (D) from the blasting site, in feet		Allowable PPV (V max, In'sec) with monitoring	Allowable PPV (V max, mm'sec) with monitoring	Scaled-distance factor to be applied without selsn-ic monitoring (Ds), ft//lb	Scaled-distance factor to be applied without seismic monitoring (Ds), and/bg	
0 to 300	0 to 91.44	125	31.8	50	226	
301 to 5,000	91.74 to 1524	1.00	25.4	55	24.9	
5,001 and beyend	1524.3 and becond	0.75	19.1	65	29.4	

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