

NEWS THIS MONTH

YOUR SOURCE FOR ALL THINGS ROCK-BREAKING



Nxburst and Vibration

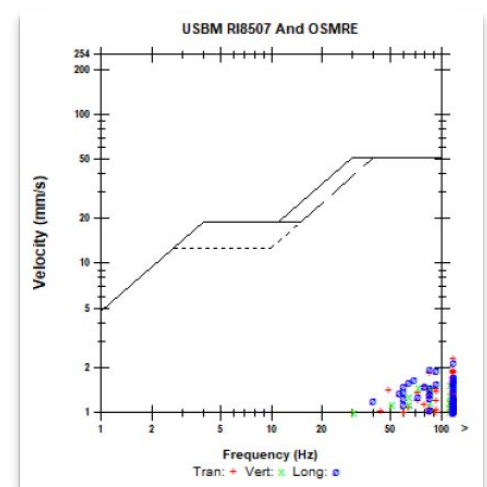
Ground borne vibrations from blasting can cause damage to buildings and infrastructure which are in the vicinity of the blast. The degree of vibration-induced damage caused by blasting is dependent on the magnitude, frequency and duration of the vibration. Generally, low frequency, long duration vibrations are more damaging than higher frequency, short duration vibrations.

The vibration waves produced by Nxburst™ are mostly of a higher frequency, with a mean of 150 Hz, and of short duration and are therefore the least harmful to sensitive structures.

In addition, the magnitude of the vibration levels produced by Nxburst™ is particularly low when compared to explosives over the same distance from the shot hole. When the propellant mixture in a Nxburst™ cartridge deflagrates, the almost instantaneous change from solid to gaseous matter is accompanied by a very sharp increase in the blast hole pressure and temperature. This is accompanied by a pressure wave that radiates from the drill hole, its amplitude decreasing as the distance from the drill hole increases.

The primary factors known to influence the level of ground vibration from the Nxburst™ cartridges include the weight of propellant per cartridge, distance between the drill holes and the point of

Figure #1



Actual Blast Vibrations Using Nxburst Cartridges

measurement as well as how the local geological and topographical conditions influence the vibration attenuation.

Vibration Limits for Structures

The degree of vibration-induced damage caused by blasting is dependent on the magnitude, frequency and duration of the vibration.

Generally, low frequency, long duration vibrations are more damaging than higher frequency, short duration vibrations.

This general rule is contained in recommendations by both the US Bureau of Mines (“USBM”) and the British Standard (“BS”), both of which are widely used in vibration specifications for rock breaking near sensitive structures.

The USBM criteria are as follows:

Frequencies above 40 Hz:

PPV < 50 mm/s - safe zone

PPV > 50 mm/s - damage zone

Frequencies below 40 Hz

PPV < 13 mm/s - safe zone (old wooden house)

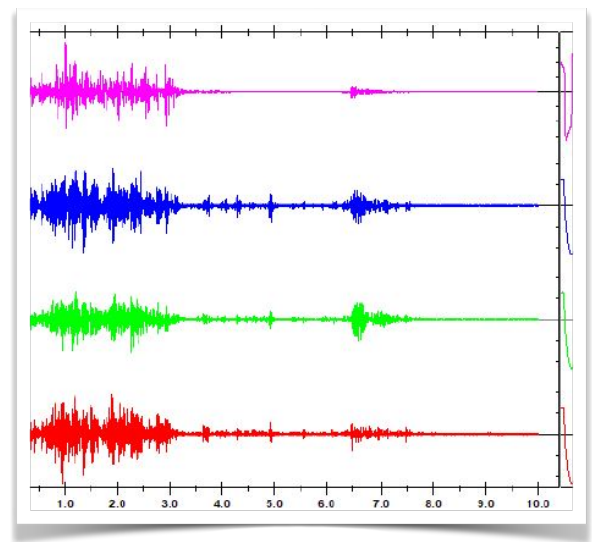
PPV > 19.5 mm/s - safe zone (modern house)

As a result of the reduced charge weights used for Nxburst™ rock breaking and its favourable vibration signature, the vibrations generated by Nxburst™ are well within most imposed restrictions for rock breaking close to sensitive structures. As can be seen from Figure 1, safe vibration levels for rock breaking, as defined in the USBM guidelines, can be achieved by Nxburst™ within 1 metre of a sensitive structure.

Coogar Sales & Services is the proud distributor of Nxburst throughout Canada, US and Mexico and has the stock to meet your demands. With our staff having practical drill and blast experience, we can guide you through even the most delicate of jobs safely and effectively, helping you and your bottom line.

Give us a call at (866) 762-5835 or visit www.coogarsales.com

Figure #2



Vibration Graph Corresponding to Figure #1