

OCCUPATIONAL EXPOSURE TO HAND-ARM VIBRATION-JUST FACTS

VIBRATION EXPOSURE: In the U.S. alone about 2.5 million workers are exposed daily to Hand-Arm Vibration [HAV] from the power tools they use on-their-jobs.

THE MEDICAL EFFECTS OF HAV/TREATMENT: It is well known & documented since 1918 that daily occupational exposure from many, but *not all*: pneumatic, electric, hydraulic, or gasoline powered vibrating hand-tools have been causally linked to an *irreversible* medical condition of the fingers/hands [originally called Raynaud's Phenomenon of Occupational Origin; later called Vibration White Finger disease] now called Hand-Arm Vibration Syndrome [HAVS]. Documented workplace prevalence's of HAVS range from 20-50% in the U.S. for power tool users depending on the tools used, daily vibration exposure levels, work practices, etc.

For the fingers and hands, the common signs and symptoms of HAVS are typically: pins and needles feeling; tingling, numbness; loss of finger sensation and dexterity; nightly awakening with painful fingers and hands. Advanced symptoms [typically during cold weather] are painful attacks lasting 5-15 minutes where one or more fingers turn 'white or blanch'. It is well known and documented that vibration, cold, and nicotine [from smoking] *all* or each alone constrict blood vessels. Thus cold temperatures and/or smoking can worsen HAVS for those diagnosed with HAVS. Since HAVS is irreversible; without a cure, current medical treatment can only reduce the pain and suffering associated with HAVS attacks. Thus the watchwords are vigilance and prevention to minimize the medical effects of HAV. Note that HAVS is *not* Carpal Tunnel Syndrome [CTS], although in some instances a person can have both occurring simultaneously in one or both hands.

HAV HEALTH STANDARDS: Over the years since 1918 modern methods of measuring and quantifying HAV have been developed and are used world-wide. These measurements are used with world-wide HAV occupational health standards which have been developed both in the U.S. [ANSI S2.70-2006, consensus standard] and in European Union there are laws enacted in 2005.

HAVS WORKPLACE PROTECTION: Since 1980, various tool manufacturers have introduced newer designed power tools with reduced vibration characteristics [called 'AntiVibration or A/V tools'] as alternative choices to conventional power tool types. At this time, *not all* conventional power tools have been replaced with A/V models and some tools may never need replacement because of their inherently low vibration levels. Try to use A/V tools when necessary and possible.

In 1996, international standard ISO 10819 for reduced vibration gloves [called 'A/V or AntiVibration gloves] was introduced. Only *full-finger protected* gloves are tested since HAVS *always* begins at the finger tips & moves towards the palm; finger exposed gloves are not recommended. Gloves which meet or exceed ISO 10819 are called 'certified' and are recommended. But using certified A/V gloves alone will not solve the HAV problem, A/V gloves should be used with A/V tools together with the following work practices:

- a) Keep fingers, hands, and body warm;
- b) Do not smoke;
- c) Let the tool do the work, grasping it as lightly as possible consistent with safe work practices;
- d) Do not use the tool unnecessarily and keep it well maintained;
- e) For pneumatic tools, keep the cold exhaust air away from fingers and hands;
- f) If signs and symptoms of HAVS appear, seek medical help.

Want to know more about HAV & HAVS? 'Vibration Syndrome', Current Intelligence Bulletin#38, Pub.#83-110, [1983], National Institute for Occupational Safety and Health, Cincinnati, OH 45226

Book: 'Hand-Arm Vibration: A Comprehensive Guide' [1998], OEM Press, Beverly Farms, MA 01915

Website: <http://www.safetycenter.navy.mil/acquisition/> [Refer to vibration section]