

Harmonic Footprinting LLC announces its patent pending Thermal Cycling.

By Barbara Cohen

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Harmonic Footprinting LLC and its founder Frank Masyada, developed Thermal Cycling, a patent pending temperature modulation process that improves the life expectancy of metal. Thermal Cycling slows metal fatigue.

Harmonic Footprinting announces its patent pending Thermal Cycling.

What is Thermal Cycling?

Thermal Cycling, developed by Frank Masyada, is a proprietary temperature modulation process. It is aimed at improving performance, strengthening and increasing the life expectancy of metals. Thermal Cycling could possibly also enhance the life expectancy of various plastics, polymers and composites. Thermal Cycling is currently used in a variety of industries where stronger material performance is required.

How does Thermal Cycling work? In a nutshell, every metal has a unique temperature range, extreme hot and extreme cold. Thermal Cycling alternately cools and heats metal until it experiences molecular reorganization. Molecular Reorganization tightens or optimizes the particulate structure of the metal evenly throughout. Reorganization also increases density and uniformity, while minimizing flaws and imperfections.

Tighter molecular structure enhances energy conductivity and heat distribution.

Most importantly, Thermal Cycling directly relieves stress. When metal is exposed to environmental conditions, its strength is taxed to the limit. Take for example, metal in an automobile brake. When the brake is applied quickly to avoid a collision, the metal in the brake is put under stress and taken to the limit of its strength. Flaws and imperfections at the molecular level weaken metal and can cause the brake to fail.

Creating tighter molecular structure slows the tendency of metal to vibrate. Reducing vibration dramatically abates metal fatigue resulting in eventual failure or breakage. Tighter molecular structure also improves corrosion resistance because the reorganization of the material impedes the forces of oxidation and chemical degradation. Thermal Cycling is a molecular reorganization, not a coating that is unevenly applied to the outside of metal.

To understand Thermal Cycling, think of a paper clip. Bend the metal back and forth and eventually the paperclip will break. Why? Because the metal was under stress, taxed to the limit of its performance. Thermal Cycle the paperclip, improving the strength of the metal at the molecular level. It now takes significantly more bending back and forth to break the paperclip. Will the paperclip's metal eventually fatigue and break? Sure, but much later than sooner.

Frank Masyada has been the leader in developing Thermal Cycling for its use on metal. Because of Frank Masyada and his efforts, Thermal Cycled metal will be stronger, denser, and have a much longer life expectancy.

One product that benefits from Thermal Cycling are brakes. Thermal Cycled brakes are put under less stress, stopping truer and faster. Thermal Cycle brakes last as much as 2-4 times longer than non-Thermal

Cycle brakes. This key point alone provides significant savings to municipalities (school bus brakes), railroad companies (railcar brakes), trucking fleets (truck/bus brakes) and airplane manufacturers (airplane brakes), etc.

The applications for Thermal Cycle Metal are expansive: Aircraft, Automotive, Construction, Manufacturing, Military, Railway, Surgical, etc.

Thermal Cycling...

Optimizes molecular particulate structure of metal.

Changes the molecules instead of being a surface coating or application
(cannot be worn off)

Enhances metal density and strength throughout

Does not alter the metal's appearance or color or dimensions of the original components

Does not require secondary processes or coatings, making it very cost effective

When metal has had other coating-type processes, Thermal Cycling will actually improve the effectiveness

Improves yield strength at the same time it reduces breakage and failure

Extends metal life expectancy while it reduces wear and tear

Significantly reduces vibrations

Improves heat conduction and provides improved distribution & cooling

Relieves or reduces stress

Impedes corrosion

Reduces maintenance and repair costs

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Harmonic Footprinting LLC provides new science to retard metal fatigue.. Metal fatigue is one of the most destructive factors leading to the eventual catastrophic failure in vehicle brakes, bridge joints, oil rigs, pipelines, high rises, etc.

Category	Automotive, Manufacturing, Industrial
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