



How it Works

The cryogenic process utilized by I.C.E. is an exclusive trade secret and is noted to bring materials to a level of performance never realized prior to I.C.E.

Processed materials of most metals and poly based materials create the end results as noted below.

The unification of density is established, which allows for a common material strength in uniformity, throughout the product. With this reaction, one removes inherent stresses and works on moving the molecules across micro fractures. Also, it makes the product much less likely to fracture when uneven or impact loads are applied. With the unification of density, the ability to shed heat in a uniform manner exists, as heat follows the path of least resistance; and with unification, all paths are equal. Therefore, heat sheds in larger quantities and at a uniform rate throughout the entire wear part. Heat and friction are typically the most detrimental elements to part failure.

With the cryogenic process applied, one will note that the surface becomes 70% smoother than before processed. There are several attributes that will note to correlate with the same. In the case of corrosion, the same is reduced by 70%, as the surface of the same has become 70% smoother and closed, than prior to process. This result achieved, can be noted with a cut and polished view under an electron micro scope. Or you can simply process an upper end chrome wrench, and can feel it with your hand, as being notably smoother, to the point in a wrench that makes it slippery. This particular aspect can be of great value when corrosion is an issue. It is believed to be very applicable to hydraulic cylinders. This also shows itself well when used on bearings and internal engine parts.

An increase in tensile strength is noted, typically in the 15% range. This can be a huge attribute, as 15% has shown to be enough gain in several product lines that make the difference in a consistently performing part, and failure. Increasing the ability to literally pull the part in half by 15% can rectify parts that run on the border, but cannot be improved in size or strength due to the area it is restricted to. This is, in our opinion, very applicable to certain nuts, bolts, and wear parts that live



under constant pull. What also needs to be noted at this point, is that in opposition to what most believe, that associate durability with hardness. We do not make processed materials harder. When tested, most show an actual decrease in hardness that is measurable but not significant. It is typical to measure at, or very near, to .00003 percent softer.

Processed parts, with the exception of springs and certain spring steels, do not produce a measurable change in physical dimension. This is a very considerable point when working with internal engine parts, such as bearings, pistons, transmission parts, and the like.

Now let's take into consideration that a processed part typically will result in a product that now has a 24% increase in yield. With yield being the ability, basically, to flex and return to its original location without fracture or detriment. This has a huge value when applied to parts under constant impact. For example, if a part would typically flex 1" prior to failure, it will now encroach on 1 ¼" prior to failure. Again, the difference between moving forward with your work, or being broken down in the state of repair.

Now, take into account all of the above, and realize that by processing the metals, you have aligned the molecules in a mannerism and condition that allows the same to become 3 to 4 times more wear resistant than prior to the process. Your molecules are more uniformly aligned and now hanging onto each other better than ever thought possible. By which one becomes more productive and profitable.

Another aspect that should be taken into account is the green effect of processed metals. If a load with a weight of 10,000 lbs. is processed for a 48 hr. period, we need to view the results of the same. If you have children or grandchildren, this should be a realistic concern. When a 10,000 pound load is processed, taking into account the resulting effect is creating the wear ability of an additional 20,000 pounds of metal, if all processed lives to the third level of life. Now take into account that 78%, or there about, of what you are breathing as you read, is nitrogen. Airgas steals it from the air and converts the same to a liquid. When utilized in the machine, and it converts back to its original gaseous state. That is, when the cold, we utilize at I.C.E. is created and spent, prior to being expelled back



into the atmosphere. Other than that, we utilize approximately 20 amps of electricity for 48 hrs. That being the case, we believe here at I.C.E., if not already, we are strongly encroaching, on a negative carbon footprint.

One must always keep in mind that although close, I.C.E. processing is NOT a magic bullet, as it does not work on all metals that exist, just the vast majority of them. We are doing diligent research as to what, why, and how I.C.E. applies to real world applications. It is ominous when one considers all it applies to, it does have the ability to change the way the world functions.

As with basically most things that exist on the earth, have a past, some good and some bad. When cryogenics are taken into account, all is not good. There appears to be a little snake oil associated and affiliated with the use of cryogenics in the past. Multitudes have utilized and shown different levels of success, but consistency has not always existed, and levels of response have varied. We at I.C.E. utilize a system and vessel that we have created, and not only established a proven level of success, but have established consistency. We have a clear vision on how we apply to most materials, but not all, as new materials are created on a daily basis. We are well versed in the most common types. The scientific community is perplexed with it, as they can show where it starts and where it ends, but cannot prove at what point what really occurs. Our proofs are in our consistent performance levels. Our proofs are as solid as the consistency of the metals processed.