# Degaussing for Magnetic Media

## What is Degaussing?

Degaussing is the process of reducing a remnant magnetic field on a hard disk drive or tape to zero, and is an alternative to physical media destruction methods such as shredding. Magnetic storage media such as floppy disks, magnetic tape, and magnetic hard drives are able to store data by aligning randomized magnetic particles into a readable pattern. This process happens when you save information to your Hard Disk Drive (HDD) or tape. Degaussing, if done with the proper type of equipment, re-randomizes these magnetic alignments so that the data cannot be reconstructed. NIST 800-88 and the Department of Defense have both approved of degaussing as a data destruction method.

## Why Degauss?

According to the NSA, there are two main options for magnetic storage media data destruction: physical destruction (shredding to a 2mm particle size), or degaussing, which is sometimes referred to as magnetic wiping. Though degaussing does render media inoperable, it is different from physical destruction in a variety of ways.

The NSA defines secure data destruction as having two distinct characteristics:

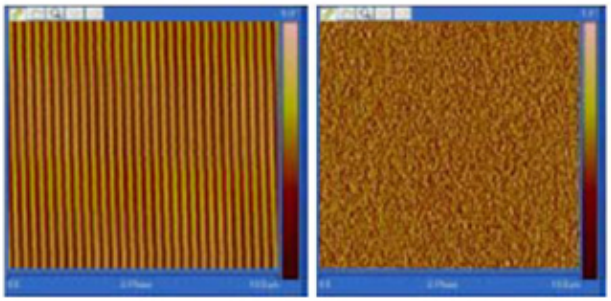
1. All of the data must be completely neutralized
2. The data must have zero chance of recovery

This leaves only three primary methods that provide true data destruction, according to the NSA definition:

1. Disintegration/size reduction of magnetic device media to a 2mm x 2mm particle size
2. Smelting/incineration by furnace at a temperature of no less than 1,600 degrees Celsius
3. Degaussing using an NSA evaluated degausser

In other words, aside from drastic measures to ensure complete physical destruction, degaussing is the ultimate form of data destruction. Not all degaussers are the same, however. The Center for Magnetic Recording Research (CMRR) at the University of California at

San Diego publishes a list of approved degaussers in its "Evaluated Product List". Before adding equipment to the list, highly skilled engineers and technicians validate that equipment meets their strict requirements.



Before After

In order to meet the NSA requirements, degaussers must have a magnetic field powerful enough to completely erase all information so that zero information is recoverable by any means, including laboratory reconstruction. All magnetic media has a property called coercively, which is measured in units of Oersteds (Oe). Though degausser strength is generally discussed in terms of gauss, you can also refer to the strength of a degausser in Oersteds, as the two terms can be synonymous. The general rule of thumb regarding required field strength is a rule of doubles: the media you are trying to erase requires at least two times its coercivity in order to achieve erasure. For example, today's 5,000 Oe HDD requires at least 10,000 Oe of field strength.

## Beware – Not All Degaussers Are Effective

NSA Approved Degausser

Most commercial degaussers, or those not on the NSA's *Evaluated Products List-Degausser*, do not exceed 9,000 Oe, and are limited in their ability to provide complete erasure. In addition, the advertised field strength is often the maximum, but it is the minimum tells you a degausser's true capability.

Though the cost and portability of a hand-held degaussing wand may be attractive, wands cannot be used on tapes, and a specific and lengthy process must be correctly followed for each and every hard drive platter, or some recoverable data may remain.

Wand Degausser

Proper use of a wand requires removing each drive from its assembly, making three passes over both sides of each individual hard drive platter and maintaining physical contact between the degaussing wand and the disk platter during the entire process. The wand must also cover the entire surface of the disk from hub to perimeter at all times. The fact that the wand is hand-held increases the risk of human error.

To learn more about degaussing and other aspects of secure data destruction, contact LifeSpan at **(888) 720-0900** or visit www.lifespantechnology.com