

LIQUID ASSETS

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COMMERCIAL TIRE SERVICE

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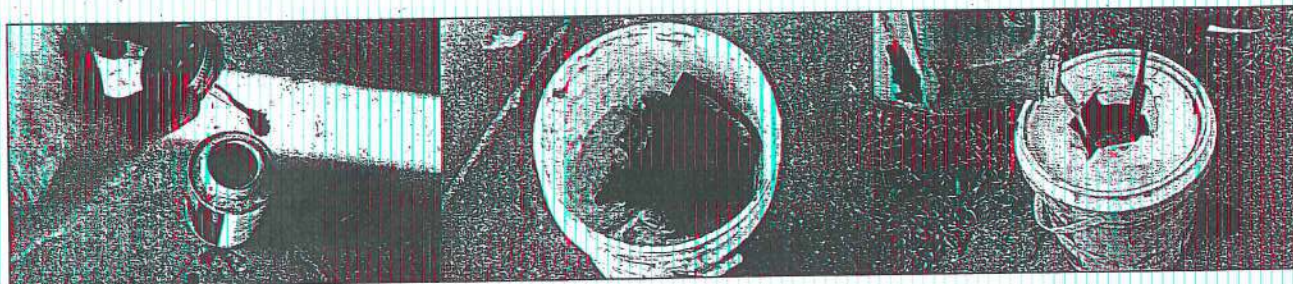
TODAY'S TIRE INDUSTRY | FALL 2010

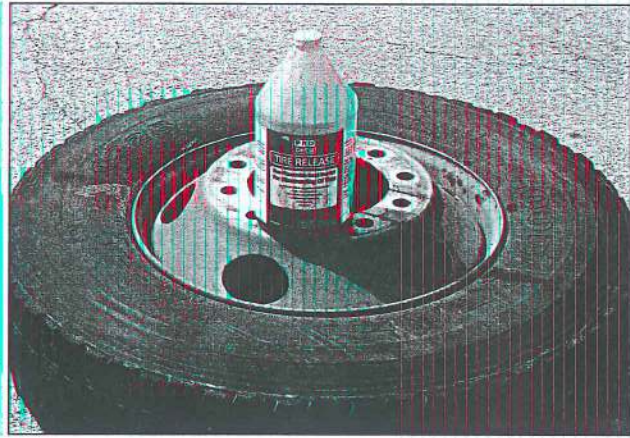
We call it Egypt, but the ancient Arabs called it *Al-Kemia*, or the "black land," in reference to its many mysteries. From the Arabic *Al-Kemia*, we get *alchemy* – the study of the changing properties of the natural elements, among other things. The most ancient of the alchemists are believed to have been Egyptian, although the practice of alchemy sprang up independently in both India and China at some point in pre-history. Interestingly, tradition in all three cultures has it that alchemy was introduced by visitors from a distant land beyond the sea (some fodder for you E.T. and Atlantis buffs). Alchemists believed that all metals were in a state of transformation, eventually reaching perfection as gold. Through the proper combining of different metals under the correct application of heat, alchemists were convinced they could find a way to accelerate the natural process of turning base metals into gold. Along with the secrets of accelerating time came the secrets of slowing time down and achieving longevity for the human body, or even immortality. The key to achieving perfection – whether with gold or immortality – lied in the mysterious element known as the Philosopher's Stone.

Alchemists saw that hidden within a living seed, there existed something that would transform it into an ant or a mighty tree, as long as the elements of water, sunlight (fire), earth, and air were combined in the correct proportions. A seed could be alive, or it could be dead. The question was: "Why?" What was that life? What was that mysterious element? Alchemists observed nature and the living transformations within it. They saw how fire transformed objects into ashes or smoke, how certain metals quickly became rust, and how living things grew old. They attempted to recreate transformations in laboratory settings. The Egyptians were believed to have discovered the secrets, and there are stories of certain medieval Europeans who had likewise gained that knowledge and earned the immortality that came with it. Whatever the truth, the alchemists, known as Philosophers (with a capital P), were the first scientists; it is to them that we owe our modern methods of scientific study.

Alchemists, however, earned a poor reputation in time as quacks, witches, and confidence artists, and were ultimately banned by the Holy Inquisition. While this didn't stop the practice, it did have something to do with a change of name sometime during the late 18th century. The study of the elements became known as *chemistry*, a field that went on to enjoy solid repute. To this very day, chemists study the same things that the Ancients did, although with better laboratories and apparatus. We associate chemistry today mainly with pills and medicine, but without chemists, we wouldn't have paints or varnishes, shampoo, toothpaste, plastics, or titanium... or even tires. We call it chemistry, but the vulcanization of rubber was alchemy in its purest form, as it mixed raw rubber with sulfur under the application of heat. And, the same alchemy (or modern chemistry) that gave us tires also provides us with some of the materials we use for their service.

The old woman who whipped up batches of lye soap behind her Ozark cabin in the 19th century was an alchemist of sorts. She concocted the precursor to the soaps we use today. Her great-grandchildren took her know-how a step further and invented different types of soap for different uses. Although you could, you generally wouldn't use dishwashing liquid to bathe with, or vice-versa. You also wouldn't use laundry detergent in the dishwasher. Nowadays, every kind of soap has its particular application. They even have soap for different parts of your body – soap for your hair, soap for your face, soap for your teeth (kind of), and soap for the rest of you. I've been known to scrub my hands with kitchen cleanser before, but that's not its intended use. They make hand (and hands-only) soap for that. The alchemists who work in the tire service industry make "soap" for lubricating tire beads and wheels, although it comes under the heading of "mounting compound." While some mounting compounds are vegetable-oil based, nothing with a petroleum-oil base should ever be used for mounting or demounting tires, as petroleum products degrade rubber compounds. Neither should any product containing silicone or grease be used. Besides damaging the tire or





even the wheel, improper compounds can cause the tire to slip around the rim while rolling down the road.

Some mounting compounds come ready to use (either in the form of a liquid or a thick paste), while others require techs to engage in a bit of their own alchemy. This latter type is intended to be mixed with the correct portions of water to produce the right consistency. Too much water will leave the mixture too runny and insufficiently thick to lube a bead properly, so the tech must be at his alchemical best during the mixing. In addition, all tire-mounting compounds these days come with rust inhibitors, and too much water will counteract those properties.

Rust is a naturally-occurring transformation that creates all kinds of problems for tire service personnel. Liquid anti-rust products initiate a process that makes rust appear to vanish. While we don't actually use anti-rust substances to service tires, we use them on our tools. We spray WD-40 or similar products on the hinge-pieces of our jacks or on the threads of the bolts; we use them on our locking pliers or any tool we use that has moving metal parts, and we need to spray the hinges of our portable safety cages from time to time, as these are exposed to rain while riding in the back of our trucks. Every service truck will have a can of "loose juice" stashed on it somewhere. Since the earliest days of truck tire service, techs have applied rust-dissolving products to corroded inner and outer stud-piloted wheel lug nuts before removal. If this is ever done, those lug nuts should be replaced. Inner and outer nuts are designed to be installed dry, without any form of lube, in order to ensure that the correct amount of torque can be applied to them during tightening.

Every service truck should also have a squirt-can of oil for applying between the nut body and flange of hub-piloted wheel nuts. The studs of a hub-piloted wheel system require a couple drops of oil, too. Our modern alchemists have conducted thorough testing of various products, and they've concluded that oil is the best product for that purpose.

Another liquid we use for servicing truck tires is liquid "bead breaker," which is intended to penetrate the area

between the rim and the tire bead in order to loosen or dissolve any rust that has accumulated. Especially on multi-piece, tube-type rims and wheels where lock rings and side rings are involved, rust can render an assembly almost impossible to demount. The trick of modern tire service alchemy has been to create a bead-breaking product that doesn't damage tires or wheels. This has been accomplished with a number of products, but because of the vapors, they must be used in a well-ventilated area. And, as those vapors are flammable, bead-breaking liquids should never be used in any area where the presence of sparks or flames is a possibility. Proper eye and skin protection should also be employed when using any liquid bead-breaking products with flammable properties.

Throughout the centuries, alchemists have on occasion created one result while trying for another; or, like Charles Goodyear (if the legend is accurate), have unintentionally mixed substances and come up with a useful product, as Mr. Goodyear did when he knocked sulfur into a batch of raw rubber. A similar series of events has recently made a new product available for tire service personnel. Pro-Chem has introduced a liquid bead breaker called *Tire Release*, which is unique because it is the first product of its kind to be non-flammable, so it can be used safely around heat sources. It appears to be effective against rust, and can also be used like any other anti-rust agent on hinges and metal tools with moving parts.

But, there's more to *Tire Release* than its ability to help unseat stubborn beads. It also makes a high-quality bead and wheel lube. I've tested the product myself, and I noticed that when I applied it to tire beads before demounting, the tire will pop off the wheel like nobody's business. There is also very little waste involved; when a swab is doused in it, the product hardly drips. Several beads can be lubed with one dunking, and it doesn't evaporate off the bead as quickly as some of the water-and-soap mixtures. It leaves a thick film on a bead that won't run into the tire. Testing has also shown that a tire mounted with *Tire Release* results in zero slippage on the rim.