PRI-G

Composition:

Aliphatic Solvent:	30%
Amine Compounds and Dispersants:	70%
Active Components in fuel after dosing:	350 ppm

PRI-G for gasoline contains a 70 percent mixture of complex amines and dispersants. This proprietary combination of amine chemistries involves more than 200 complex amine compounds, precisely formulated to address issues for a wide range of fuels and reactions.

PRI effectiveness has been clearly demonstrated in independent, third-party, stability and emissions tests under accepted, petroleum industry test methods, including the ASTM D2274, the Octel F-21-61, the ASTM D525, the EPA/CARB 13-Mode test, and the BMW 100-hour deposit test.

Amine-based chemistry, similar in concept to that used in **PRI** treatments, is presently applied by refiners to all motor gasoline sold in the Unites States to meet EPA mandates for deposit and emissions control. The amount of additive required is .05% by weight, which only provides a limited incremental benefit. The chemistry of **PRI-G** provides additional strength, as measured in ASTM 525 Oxidation Stability testing conducted on additized US fuels, and as evidenced by the results of the BMW 100-hour engine deposit test.

In addition to their excellent properties in elevating fuel stability while providing emissions reductions, amines are also excellent corrosion inhibitors, and are widely used in industrial applications for this purpose. The amines contained within PRI products protect against fuel tank corrosion.

PRI products are also safe, having passed rigorous elastomer compatibility tests (seal integrity). When added to fuel, PRI fuel treatments will not damage injection pump and fuel line seals.

While popular among private consumers, the same PRI products have been subjected to rigorous evaluation and use by local, state and federal governments, public utilities, oil producers and suppliers, and commercial marine vessel operators worldwide, among many others. For this reason, PRI aftermarket consumers can rest assured that PRI chemistry safely works each and every time.

When dosed into fuel at 1:2000, active ingredients of **PRI** in the fuel are present at a level of 350 ppm (350 parts per million) – a dosing range expected for a refinery-grade stabilizer.

SOLTRON - STAR-TRON

Composition:

Aliphatic Solvent:	99.5%
Active Organic Compound:	0.5%
Active component in fuel after dosing:	5 ppm

The MSDS documentation for both Soltron and Star-Tron shows a 99.5% composition of a non-active, aliphatic solvent filler. The amount of the active ingredient accounts for less than 0.5% of the product.

When dosed into diesel fuel at the manufacturer's suggested dose rate of 1:1000, the active ingredient is present in the fuel at the rate of 5 ppm (parts per million) – technically, a dose rate far below that of any of the myriad of additives used by petroleum refiners to enhance stability or control deposits in modern gasoline and diesel fuels.

The original formulator, Solpower, claims the 0.5% active ingredients are proprietary enzymes. In published statements Solpower claims these enzymes "weaken the hydrocarbon molecule of the fuel". However, Solpower offers no technical information on precisely how this is accomplished, nor does it provide any independent, third-party lab test reports to support product claims.

In refining, the "weakening" of a hydrocarbon molecule – literally splitting the hydrocarbon structure into a lighter, more volatile structure -- is accomplished through sophisticated catalytic cracking units or hydrogen treating units under great heat and pressure. So far, the best research minds at Exxon/Mobil, Royal Dutch Shell, Chevron, BP/Arco and Conoco-Phillips, among many others, have not discovered a cold chemical process to accomplish molecular cracking – as is suggested by Solpower. The reason is simple. Such a process does not exist.

In truth, enzymes are actually proteins composed of amino acids. In industrial applications, enzymes are used to accelerate biological reactions. For example, they have been applied to biomass to convert starch to sugar. By definition, petroleum hydrocarbons are not biological entities. They have no biological mechanism that can be affected by an enzyme.

Even in biotech applications, the effectiveness of enzymes is severely limited by narrow temperature and pH range, conditions not present in modern hydrocarbon fuels.

Solpower and Star Tron also claim "water removal" from fuel. Some additive manufacturers make this inaccurate statement based on the fact that their products contain a glycol or alcohol component, that can, to a small extent, emulsify or "entrain" moisture in fuel. Technically, the water is not removed, it is simply emulsified.

In Star-Tron's case, the product contains no glycol or alcohol component. In fact, even a drop or two of water will not mix with Star-Tron at a 100% product concentration.

The claim does, however, capitalize on the fact that the fuel systems of most boats are equipped with a water separation filter that will do the work regardless of whether or not an additive is used. As a result, the additive may appear to be effective in water removal, yet in fact good fuel filtration is actually doing the job.

STA-BIL

Composition:

Napthenic Solvent:	95%
Additive Mixture	5%
Active components in fuel after dosing:	32 ppm

STA-BIL is composed primarily of a light, petroleum-based, napthenic solvent used as a carrier for the active ingredients, which comprise five percent of the product. At STA-BIL dose rate, active ingredients in fuel are at 32 ppm, sufficient with some chemistries to provide mild stability enhancement.

STA-BIL has demonstrated a capability to provide modest fuel stability improvement in many gasoline and diesel fuels, based on independent, third-party tests.

STA-BIL does not claim to restore degraded fuel to freshness. STA-BIL has a maximum shelf life of its own of two years when caps are tightly sealed.

Overall, STA-BIL is a competent, consumer-grade stabilizer. The downside is that the STA-BIL formulation has remained essentially unchanged since the product was developed more than 25 years ago. In turn, with changes in fuel formulation to meet Clean Air Act standards, STA-BIL chemistry has shown to be ineffective in some fuel formulations.

This was recently confirmed in an Octel F21-61 test of and EPA diesel fuel that established serious fuel degradation following STA-BIL treatment.