

# Frequently Asked Questions

## HOW LONG WILL VP FUELS LAST IN AN UNOPENED DRUM?

The length of time the fuel will stay fresh in a sealed drum depends on the fuel itself. A non oxygenated fuel such as C12 should be used within a couple years. I personally have tested some that was eight years old and was fine. As far as an oxygenated fuel I would like to see these fuels used within a year or so. This way you know the oxygen content is still within spec. Both oxygenated and non oxygenated fuels will most likely last longer than I have stated, but I feel that to ensure the best performance following these recommended guidelines will be to your benefit.

## HOW LONG WILL VP FUELS LAST IN ONE OF YOUR MOTORSPORT CONTAINERS?

I would personally use it within 2 to 4 weeks. A plastic container is designed for fuel transfer, not storage. If you are going racing for a week or weekend, it's OK to put your fuel in the plastic containers. I just recommend that when you get to your shop you put the fuel back in the drum and seal it. This will keep it fresh. Plastic is porous. Even though the liquid fuel doesn't leak out, the light ends of the fuel can evaporate out of the plastic. Plus the sun's UV rays can penetrate plastic and the lead may drop out. Again, plastic containers are designed for transfer, not storage.

## WHAT DOES OCTANE REALLY MEASURE AND HOW IMPORTANT IS IT?

One of the most frequently asked technical questions we get at VP involves the difference between Motor, Research and R+M/2 Octane Numbers. The next most frequently asked question is why some fuel companies represent their fuels with Motor Octane Numbers, while other companies use Research or R+M/2 Octane Numbers.

Realize first that octane is a measurement of a fuel's ability to resist detonation—nothing more. The two types of machines used for testing octane—a Motor Octane machine and a Research Octane machine—were designed in the 1930s. They were designed to test for octane numbers from the 0-100 range, therefore, any number above 100 is an extrapolation.

Both of these machines are dinosaurs and are not adequate for today's high tech fuels or engines, but they're the only means available for testing fuels. These machines are one-cylinder engines with an adjustable head that can move up or down to increase or lower the compression ratio while the engine is running. The Motor and Research machines are the same in this respect, but they differ in several other characteristics.

The following is a comparison of the two machines used for testing octane numbers:

- **Motor**
- **RPM**
- **INTAKE TEMP**
- **TIMING**

- **Octane Machine**
- 900
- 300 DEGREES F
- VARIABLE BASIC

- **Research Octane Machine**
- 600
- 120 DEGREES F

- FIXED AT 13

DEGREES(DOES NOT CHANGE)  
SETTING 26 DEGREES

As you can see, the Motor Octane machine runs at a higher RPM, higher temperature and more timing. This machine puts more stress on the fuel than a Research machine and more accurately simulates a racing engine. VP Racing Fuels always includes Motor Octane Numbers when promoting its fuels because our fuels are used exclusively for racing applications.

The Research Octane machine will always produce a higher number for the obvious reason that it does not put the same amount of stress on the fuel. This number is used by some fuel companies to trick the racer into thinking the fuel is rated higher, i.e., higher quality, than it really is. The "R+M/2" Octane Number is the average of the Research and Motor Octane numbers for a fuel and is the number displayed with yellow labels on retail level gas pumps.

**When comparing fuels for racing purposes make sure to compare Motor Octane Numbers because these are the ones that count in your racing application.** Focusing on the MON of each fuel will help ensure you're comparing apples to apples with regard to octane.

**But bear in mind, a fuel's ability to prevent detonation is a function of more than just octane.** For example, VP's fuels—oxygenated or nonoxygenated—vaporize much better than competitive fuels with comparable octane ratings. This means VP fuels cool the intake charge, burn faster and yield more efficient combustion. As a result, the "effective" octane rating of VP's fuels is even higher than the rating generated by the octane test. As a result, VP fuels will prevent detonation more effectively than competitive fuels with comparable MONs.

## **BESIDES OCTANE, WHAT ELSE DO I NEED TO CONSIDER WHEN SELECTING A FUEL ?**

Too often, racers focus only on octane when evaluating the quality of a fuel. Octane is certainly important, but it's just one of several key fuel properties that should be considered when evaluating and selecting a fuel. It's entirely possible to generate more horsepower with a lower octane fuel if it's designed properly with respect to its other key properties. It's also possible for two fuels to have the same octane rating, but perform very differently due to their other key properties.

**1. OCTANE:** Octane is simply a rating of a fuel's ability to resist detonation and/or preignition. It is not so much an indication of a fuel's ability to make power, but rather a fuel's ability to make power safely, i.e., without blowing your engine. Octane is rated in Research Octane Numbers (RON), Motor Octane Numbers (MON) and Pump Octane Numbers (R+M/2). A Pump Octane Number is the number you see on the yellow decal at gas stations, representing the average of the fuel's RON and MON. (See below for a more detailed explanation of how octane numbers are derived and what they represent.)

VP relies on MON numbers because the MON test more accurately simulates racing conditions. Don't be fooled by high RON or R+M/2 numbers. Many companies use these simply because they look higher and are easier to come by because of the test methods. Also bear in mind that the ability of fuel to resist detonation is more than just a function of octane.

**2. BURNING SPEED:** This is the speed at which fuel releases its energy and is partially a function of a fuel's vaporization qualities. At high RPMs, there is very little time (real time – not crank rotation) for the fuel to release its energy. Peak cylinder pressure should occur around 20° ATDC. If the fuel is still burning after this, it's not contributing to peak cylinder pressure, which is what the rear wheels see. Because VP's fuels are designed with a particular focus on vaporization characteristics, most of VP's fuels—oxygenated or nonoxygenated—vaporize much better than comparable competitive fuels. This means it cools the intake charge, burns faster and yields more

efficient combustion. As a result, the “effective” octane rating of VP’s fuels is even higher than the octane test indicates, and they will prevent detonation better than competitive fuels with similar MONs.

**3. ENERGY VALUE:** Energy value is an expression of the potential energy in fuel. The energy value is measured in BTUs per pound, not per gallon. The difference is important as the air/fuel ratio is in weight, not volume. Generally speaking, VP’s fuels measure high in BTUs per pound and thus, have a higher energy value. This higher energy value will have a positive impact on horsepower at any compression ratio or engine speed.

**4. COOLING EFFECT:** The cooling effect of fuel is related to the heat of vaporization. The higher a fuel’s heat of vaporization, the better its ability to cool the intake mixture. The superior vaporization characteristics of VP’s fuels make cooling effect one of their key advantages. A better cooling effect can generate some horsepower gains in 4-stroke engines and even bigger gains in 2-stroke engines. VP’s superior cooling effect can also ensure circle track racers maintain power in the longest races and harshest conditions. In virtually any application, the cooling effect of VP’s fuels will help extend engine life.

Understanding these key properties of fuel will better equip you to evaluate fuels for your application. By clicking on your application to the right, you’ll find a list of VP fuels designed with you in mind, along with the fuels’ relevant characteristics.

Before making a final fuel selection, we encourage you to consult with your VP regional distribution center or VP’s Technical Support Staff.

Be prepared to answer the following questions:

- Is your engine naturally aspirated, turbocharged, blown or using nitrous oxide?
- What is the compression ratio (CR) of your engine?
- Does your engine have O2 sensors or CATS?
- In what series or sanctioning body will you be racing?
- What are their fuel rules, e.g., are any fuels illegal or do they allow oxygenated fuels?
- In which class will you be racing?

You can be confident that once we understand your application, we’ll find the fuel that will make the most power for your engine!

## **CAN YOU OVER OCTANE AN ENGINE? IF SO, WHAT HAPPENS?**

Yes you can over octane an engine. Generally you will get sluggish throttle response. Also you may get fouled plugs and deposits in the exhaust ports and headers. When an engine is trying to burn a fuel that has too much octane, the burn rate is incorrect and all of the fuel won’t be used up. This excess usually gets left as a deposit or gets pushed out the exhaust. It is important to match your engine’s needs with the correct fuel.

## **IS IT OK TO USE NITROUS OXIDE WITH Q16?**

It’s OK to spray nitrous to Q16. I wouldn’t recommend multiple kits but single stages up to 500hp or so. When you spray multiple kits, you are introducing all the oxygen, i.e., nitrous, the engine can handle. This is where you want a fuel that will help reduce detonation, and where VP’s C23 is perfect. An oxygenated fuel hasn’t proved to be a benefit in these applications yet.

## **WHAT JETTING CHANGES ARE REQUIRED FOR Q16?**

Generally on a single 4-barrel application, 2 to 3 Holley jet numbers richer is sufficient. I have experienced many instances of over jetting with this fuel, where it works great on the dyno, but on the track the car is a pig. What I’m finding is most people are already rich, so when you go up another 2 or 3 jets you are way out of the ballpark. Most applications run best about 2 jet sizes richer from their previous fuel on the track. This is approximately 8% more fuel. If this still seems

to be rich, you may need to increase the high speed air bleed .003 or so. This will get you to approximately 6% more fuel volume. This is where I have seen Q16 perform the best. Regarding air fuel ratio, I have seen the best power on a naturally aspirated engine around 12.8 to 1 to 13.3 to 1. This seems a bit on the rich side to me, but the engines like the extra fuel volume. Remember – every engine combination is different. It will take experimentation to get the desired result. All I can guarantee is the horsepower will increase and your ET's will decrease.

## **WHAT TIMING CHANGES DOES Q16 REQUIRE?**

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## **IS Q16 APPROPRIATE FOR SUPERCHARGERS OR TURBO APPLICATIONS?**

This fuel is the nuts for intercooled applications. We're seeing huge increases in these applications. I haven't seen any issues with detonation when they follow the 6% rule. This is richen your fuel system 6% over C16 (which is the fuel 90% of these applications are using now) and you should be close to the air fuel ratio you were at before the Q16. This is where Steve Petty (Dyno master) picked up 107Hp to the tire on a twin turbo 588 ci application. The Q16 isn't responding as well in non-intercooled applications. I recommend that in these few instances, you should stay on C16. Heck, most of these applications have enough HP as it is.

## **HOW LONG CAN I LEAVE Q16 IN MY FUEL CELL BETWEEN USES?**

I recommend that you drain the fuel out of the car if it is going to sit more than a week. Not because of gumming or corrosion of the fuel system, but because of the oxygen and the fuel evaporating. This fuel is made up of many light materials, and it will evaporate quickly. You spent good money for this performance part. Keeping it fresh will ensure a more consistent result. In a perfect world, you should drain it every night. This won't happen if you're like me, because we racers are lazy (haha). If you have an aluminum cell, you can cap the vent and it should be fine for week to week storage. I do not recommend storing this fuel or any fuel in a plastic jug or container. Keep it in a sealed VP drum and it will stay good indefinitely.

## **CAN M3 OR M5 BE USED WITH A METHANOL INJECTION KIT?**

I'd use regular methanol like VP's M1 for the injection. This is what I personally use. All you are using the injection for is to cool the air charge. This is how you get more power, because you can add more timing or boost with a cooler charge. M3 has a hydrocarbon in it and won't pull the heat like M1. M5 has a hydrocarbon and a combustion additive. I would definitely not use this. It could have bad results by combusting in the air inlet tube between the turbo and the throttle body. M1 is your best choice.

## **DOES M5 CONTAIN NITROMETHANE?**

M5 contains nitroparaffins, which are relatives of nitromethane in the same chemical family.

## **ARE THERE ANY APPLICATIONS WHERE M5 ISN'T APPROPRIATE?**

So far M5 has worked in every application I have tried it in. From a single cylinder Briggs JR dragster to a Brad Anderson blown hemi. If you're adamant about running methanol, there is no reason you shouldn't run M5. It's more consistent, you'll use less, and it makes gobs of Hp.

## **WHAT JETTING CHANGES DOES M5 REQUIRE?**

This fuel seems to be very friendly in jetting. Steve Petty dynoed a 1000 rear wheel Hp vehicle and increased the jetting 15% and the car made 1080 to the tire. He reduced the jetting to 7% and the car went 1079 to the tire. This is an 8% tuning window. I recommend you jet up 10 to 12% to start and then you can back down from there. Al Brown (Antron's father) did a back to back test with M5 vs. M1. His combination is a 540 ci injected big block Chevy running Top Dragster. With no difference in jetting, the car picked up .11 seconds and 6 mph. Again, every combination is different and you'll need to run the tests to determine what your combination likes.

## **WHAT TIMING CHANGES DOES M5 REQUIRE?**

As with Q16, so far I have left the timing alone. Run what timing you had with regular methanol. Here's my thought. The hydrocarbons in the fuel help vaporization, so you SHOULD be able to retard the timing a bit. But the fuel also contains nitroparrifins, which generally need the timing advanced to start the burn earlier. Since they are both in the fuel, they almost seem to cancel each other out, hence the timing will stay the same. Weird huh?

## **DO YOU NEED TO USE AN UPPER LUBE WITH M5?**

No, M5 already has enough upper lube in it. While VP's M2 is excellent for use for straight methanol, I don't recommend adding it to M5. I have seen injection nozzles clog up because of the extra lube.

## **HOW LONG CAN I LEAVE M5 IN MY FUEL CELL BETWEEN USES?**

I recommend the same as Q16. If the car is going to sit for a week or so, drain it out and put it back in the drum. Also, the fuel will not separate.

## **IF I'M USING REGULAR METHANOL NOW, SHOULD I TRY M3 OR M5?**

Unless you've already tried M3 with success (and M3 works great in many applications), I'd go right from regular methanol to M5. The range of applications that can benefit from M3 is slightly more limited than M5, while M5 will pick up virtually any application you put it in.

## **WHY DOES M5 WORK SO MUCH BETTER THAN STRAIGHT METHANOL?**

In two words, BETTER VAPORIZATION. Regular methanol doesn't like to vaporize in the combustion chamber. It likes to stay in liquid form. In the combustion chamber on the combustion stroke, the engine needs to burn 2 things, fuel vapor and oxygen. If the fuel doesn't vaporize well, then you will have wasted fuel going out the exhaust. The hydrocarbons and nitroparrifins in M5 help to vaporize the fuel more efficiently. This way there's more fuel vapor in the combustion chamber and in turn the engine will make more power.

## **AS A RACE FUEL COMPANY, ARE YOU EQUIPPED TO TAKE ON THE SMALL ENGINE MARKET?**

Yes, absolutely. Engineering and production of fuels for specialized racing engines is what VP has done successfully for over 30 years. Small engines are, in fact, very sophisticated engines, with a power to size ratio similar to that of a large displacement racing engine. Small engines are also air cooled, which makes them harder to maintain. And the problems caused by ethanol are magnified

in small engines precisely because of the small size of the fuel system components which can be compromised so much more quickly. It takes sophisticated technology to effectively address these problems and our extensive background in designing fuels for some of the most intricate racing engines in the world makes us just that much more prepared.

## **I'VE NEVER HAD ANY PROBLEMS WITH MY SMALL ENGINE—WHY DO I NEED THIS FUEL?**

You're one of the lucky few, and it's very possible that luck will run out as the EPA continues to increase the amount of ethanol allowed in pump gas. VP Small Engine Fuels will slightly increase power, but that's only a small benefit of VP-SEF. You'll benefit from easier starting, worry-free long-term storage and in the case of the VP-SEF Pre-Mix versions for 2-cycles, better lubrication performance. It's highly unlikely you have used an oil as good as the oil in VP-SEF Pre-Mix.

## **AREN'T GAS-POWERED TOOLS DESIGNED TO RUN ON STREET GAS? WHY DO I NEED A SPECIAL FUEL?**

Yes they were designed for street gas, because prior to our introduction of VP Small Engine Fuels, the only fuel available to the engine designers was street gas. But think about it—street gas is designed to conform to the lowest standards possible. The lowest CHEAPEST possible formula that passes the government standards is what they make. Why? Because street gas is sold almost exclusively on price. The cheapest price. But at the same time, the competition between small engine manufacturers leads them to make better, more powerful engines. And better, lighter engines demand more and more from fuels, even while the street gas they're designed to use is getting worse for these small engines. Even while newer production engines are being set up to run on street gas with 10% ethanol, the engines aren't being designed to resist the harmful effects of ethanol, i.e. gumming and corrosion. So why do you need a good fuel in your small engine? Scaled up, your small engine offers performance comparable to some of the best, most powerful racing engines in the world. And it's air cooled. Let me repeat that...It's AIR cooled. There has not been an air cooled racing engine in the last 25 years, because air cooled engines put very high demands on fuel and oil requirements. So what you have in your string trimmer is a high performance F1-caliber engine that's air cooled...running at RPMs only attained by world class racing engines...running on street gas that was made with the cheapest possible formula...laden with ethanol that will ultimately destroy your fuel system. And that's no way to "feed" your high performance thoroughbred.

## **ISN'T VP SMALL ENGINE FUELS JUST STREET GAS WITHOUT THE ETHANOL? OR JUST STREET GAS WITH OIL ADDED?**

Not even close. VP Small Engine Fuels is not just ethanol-free, but specifically formulated with the highest quality components for top performance, long life and durability of your small engine. We made no concessions to cost in the development of this fuel and oil package. VP-SEF was developed to solve a problem many consumers are already facing and others will in the near future. We've taken the same approach to designing this fuel for small engines that we use for the world-class racing engines for which we provide fuel.

## **IS VP SMALL ENGINE FUELS THE SAME EVERY TIME?**

YES, absolutely. VP Small Engine Fuels is made by VP Racing Fuels, so you can be assured that every ounce goes under extensive quality control testing. VP has been blending fuels for 35 years, including fuels for sanctioning bodies like the National Hot Rod Association (NHRA) and American Le Mans. VP fuels supplied to these sanctions face the scrutiny of gas chromatograph examinations (the same instruments used for Olympic Drug Testing) at every race. VP-SEF is produced to the same standards.



## **WHY WOULD VP SMALL ENGINE FUELS BE MORE CONSISTENT THAN STANDARD PUMP FUELS?**

There are more than 28 different fuel specifications for gasoline fuel dispensed from pumps across the U.S. These specifications vary seasonally and geographically, leading to differences in components within the fuels, whether or not a fuel is oxygenated, different ratios of ethanol in the fuels, and different octane ratings, each of which can require a different air/fuel ratio for tuning an engine. This makes it almost impossible for the small engine manufacturers to accurately tune an engine at the factory. VP Small Engine Fuels is made exactly the same every time and is designed to give good throttle response along with a wide tuning window.

## **WHY SHOULD I PICK VP SMALL ENGINE FUELS OVER OTHER PRE-MIXED FUELS?**

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What other companies are selling is pure convenience. It's just a standard pump fuel mostly without ethanol and using an oil that meets minimal standards. We're selling a fuel that is blended and designed for high performance in small engines without concession to cost. If you own a piece of gas-powered light equipment, then essentially you possess a small, high-performance engine. The only difference is that you have an air-cooled engine, not one that is liquid-cooled like race engines. In simple terms, that means you must protect your investment that is very vulnerable to heat and deposits. An excellent way to do that is by using quality fluids, including fuel.

## **CAN I BE SURE THE VP SMALL ENGINE FUELS MEETS THE MANUFACTURER'S SPECIFICATIONS FOR MY EQUIPMENT?**

You can be 100% confident that VP Small Engine Fuels will meet or exceed your manufacturer's specifications. The Pre-Mix versions of VP-SEF for 2-cycle equipment—both 40:1 and 50:1—contain a top quality synthetic oil that exceeds API TC, ISO-L-EGD and JASO FD lubrication standards. Both the 2-cycle and VP-SEF 4-cycle versions include the highest quality components available, such that our fuel will burn cleaner and with fewer harmful emissions than any gasoline available at the pump. Note that VP-SEF 4-cycle fuel can also be used in 2-cycle engines when mixed with an oil to your manufacturer's specifications.

## **HOW CAN I JUSTIFY THE HIGH COST OF VP SMALL ENGINE FUELS WHEN STREET GAS IS SO MUCH CHEAPER?**

How much do you value your time? Your cost may be lower in the short term with ethanol-laden street gas, but over the long run, you'll pay more for repairing or rebuilding the degraded fuel system in your small engine. Depending on the tool, repairs can easily run 75-150, or in some cases the cost of a whole new piece of equipment when yours can't be saved. Not to mention the cost of downtime while your equipment is being repaired, along with the aggravation and stress. Paying a few dollars more for VP-SEF can help prevent those long-term costs and the frustration that comes with them. Plus, the Pre-Mixed versions of VP-SEF save you the time and hassle of measuring, mixing, extra trips to the store for 2-cycle oil and the risk of getting the mix ratio wrong.

## **DO I HAVE TO SHAKE THE PRE-MIXED VP SMALL ENGINE FUELS BEFORE I POUR IT IN?**

There is no need to shake Pre-Mixed VP Small Engine Fuels prior to pouring.

## **MY GENERATOR AND MOWER USE LARGER VOLUMES OF FUEL – DO YOU HAVE CONTAINER SIZES LARGER THAN QUARTS?**

For generators and other equipment that use a greater volume of fuel, VP Small Engine Fuels can be purchased in 5-gallon pails, as well as 30- and 54-gallon drums. These can be especially convenient for commercial users of light equipment.

## **FUEL STABILIZERS ARE CHEAPER THAN VP SMALL ENGINE FUELS – WHY SHOULDN'T I JUST USE THEM INSTEAD?**

You can try, but there is a strong possibility of failure. Before VP Small Engine Fuels was developed, our goal was to come up with a fuel additive to solve ethanol-related problems in the cheapest possible way. We couldn't find the answer nor have we seen anyone else pull it off. There are too many issues to solve with an additive and in the end, an additive cannot fix all the problems caused by ethanol and its negative impact on the fuel systems of small engines. The only truly effective way to address the issues is to remove ethanol from the equation entirely, as we did with VP-SEF. Bear in mind, though, the qualities of VP-SEF go far beyond a gasoline without ethanol in it.

## **DO I NEED A FUEL THAT IS 94 OCTANE?**

Most small engines are designed to run on 87 – 92 octane fuels. However, the higher octane can help when engines are running hotter than they should. Elevated engine temps will require higher-octane fuel to prevent pre-ignition and detonation. Pre-ignition and detonation can be devastating to small engines. Example: If the needle valve on your carburetor is not adjusted properly the engine may be running lean, which could raise your engine's operating temperatures. The engine may seem like it's running and performing well, but the added heat is a drawback, which will create a demand for extra octane. This can occur with the changing of seasons as air density is fluctuating. If you're not readjusting the engine's carburetor accordingly, it's likely that your engine will be running in a lean condition. Higher octane can assist air-cooled engines in cooling, even if dirt and build-up have formed on the engine head.

## **I'VE READ NOT TO USE HIGH-OCTANE FUELS IN THESE ENGINES—WHY IS THAT?**

In some cases, that's a true statement. BUT...if the high-octane fuel has been designed properly (such as VP Small Engine Fuels, to which VP Racing Fuels can attest), it can actually allow small engines to have better ignition, vaporization, and cooling capabilities than street gas or lower octane fuels.

## **HOW DOES VP SMALL ENGINE FUELS LOWER ENGINE-OPERATING TEMPERATURES?**

VP Small Engine Fuels vaporizes better and burns more "efficiently" than other fuels, which results in lower exhaust temperatures and thus, lower engine temperatures. In addition, a properly designed fuel like VP-SEF can make more power, burn cleaner and extend engine life. The cost of running VP-SEF through your light equipment is a small one to pay for these benefits in performance.



## **WHAT KIND OF OIL DO YOU USE IN VP SMALL ENGINE FUELS 50:1 AND 40:1?**

Currently, we use the highest quality synthetic oil on the market, which exceeds API TC and JASO FD and ISO-L-EGD lubrication standards. However, at VP we continually look to improve our fuels and oils. In racing you have to get better every race.

## **MY MANUFACTURER'S REQUIREMENTS CONSIST OF USING A 50:1 GASOLINE-TO-OIL RATIO, BUT I'VE HAD FRIENDS TELL ME THAT A 40:1 RATIO IS SAFER. IS THAT TRUE?**

In certain instances that could be true, but rarely have we seen that be the case. For the most part, follow your manufacturers specifications.

## **CAN I SHIP VP SMALL ENGINE FUELS TO MY CUSTOMERS?**

Yes. Cases of VP Small Engine Fuels quarts are classified as Consumer ORM-D and may be shipped with no HAZMAT charges. VP-SEF in 5-gallon pails and larger containers is classified as UN3295, Flammable Liquid, Class 3.

## **WHAT ARE THE FEATURES AND BENEFITS OF THE OIL USED IN VP SMALL ENGINE FUELS PRE-MIX??**

The oil is extremely clean burning but does not sacrifice film strength or extreme pressure qualities just to be a clean oil. Oil is usually a compromise of qualities over cost. In our case, nothing has been sacrificed to save a buck. Sure, it will create a product with a premium price, but the added value exists in the quality of the product. It's relative.

## **IS VP SMALL ENGINE FUELS THE BEST POSSIBLE PRODUCT I CAN CHOOSE FOR MY SMALL ENGINE?**

Definitively yes. Its components are the highest quality available, making it the most cost-effective protection you can buy for your equipment investments.

## **WHAT'S THE DIFFERENCE BETWEEN THE VP SMALL ENGINE FUELS 4-CYCLE, 50:1, AND 40:1 BLENDS?**

The VP Small Engine Fuels 4-cycle fuel is the same as 50:1 or 40:1, but without the oil. The difference between 50:1 and 40:1 is simply the ratio of gasoline to oil mixed in the blend.

## **I HAD TO CHANGE MY SPARK PLUG AFTER RUNNING VP SMALL ENGINE FUELS. THE PLUG WAS FOULED—WHY DID THIS HAPPEN?**

This is a very unusual occurrence. VP Small Engine Fuels will burn extremely clean, but if the engine isn't tuned properly then no matter what gas you use, it will run excessively rich and be more prone to foul plugs. Technically, VP-SEF should improve this situation once tuning occurs. VP-SEF will be the cleanest running fuel you have ever used.

## **HOW LONG WILL IT LAST IN MY SMALL ENGINE'S TANK?**

VP Small Engine Fuel can be left in a fuel tank through the off-season and beyond, making it an excellent "winterizing" fuel to ensure easy start-ups in the spring (or winter start-ups for snowblowers and the like). The ultimate life of fuel in the tank depends on how vented the tank is and the conditions in which it's stored, i.e., extreme vs. moderate temperatures.

## **HOW LONG WILL THIS FUEL LAST IN STORAGE?**

VP Small Engine Fuel will remain stable more than two years when kept in its original sealed container. Even after pulling some of the fuel out, you're looking at about a two-year life as long as

you properly re-seal your container. The VP-SEF container was designed with an enclosure that will properly seal and allow no venting.

## **DO ANY OF THE VP SMALL ENGINE FUELS PRODUCTS CONTAIN LEAD?**

NO, there wouldn't be any benefit to using lead in this fuel blend.

## **ARE THERE ANY OXYGENATES IN VP SMALL ENGINE FUELS?**

No oxygenates are used in VP Small Engine Fuels. It is a straight hydrocarbon fuel.

## **HOW LONG IS THE FUEL GOOD FOR?**

Stored correctly, 3 – 5 years.

## **HOW DO I STORE MY FUEL?**

Cap tightly secured, out of direct sunlight and off concrete floors. Away from any ignition source, like stoves or hot water heaters. Ideally in a climate controlled environment.

## **WHERE IS VP POWERMASTER MADE?**

At the same facility in San Antonio Texas, where all VP Racing Fuels are produced for full size racing. All VP Powermaster blends are tested at VP Racing Fuels onsite laboratory using the same rigorous testing procedures as our race gas.

## **DO YOU MAKE PRE-MIXED FUELS FOR MY LARGE SCALE MODELS?**

Yes. VP Powermaster designed Powermix for large scale two stroke engines used in radio controlled models. Available in 50:1, 40:1, 25:1 and in Powermix premium that contains no oil, allowing you to use your own lubricating oil package or for four stroke applications.

## **WHAT SIZES IS YOUR FUEL AVAILABLE IN?**

VP Powermaster is available in US quarts (946ml) and in US gallons (3785ml). VP Powermaster quart cases contain 12 single quarts and gallon cases contain 6 single gallons. Powermix is available in US quarts, US gallons and US 5 gallon pails. Powermix quart cases contain 8 single quarts and Powermix gallon cases contain 6 single gallons. Powermix 5 gallon pails are sold individually.

## **WHY SHOULD I USE VP POWERMASTER OVER OTHER BRANDS?**

For over 40 years VP Racing Fuels has engineered the highest quality racing fuels for all full-size racing categories. Now you can have the same passion for performance and quality for your radio controlled car, airplane, helicopter or boat. You work hard to buy the best equipment and work countless hours of building and prepping your gear for trouble free days of performance and fun. Start using VP Powermaster today and experience what you have been missing.

## **Can VP Hand Sanitizer be used to disinfect surfaces?**

VP Hand Sanitizer is not approved for use as a disinfectant.

## **Are there instructions on the label?**

Yes, instructions for use are contained under Drug Facts on the label and in the SDS.

## **What does the NDC code mean?**

An NDC is unique product identifier. The first 5 digits are the labeler code, which is for the company and location. The next three are the product code...801 is the 80% ethanol blend. The last two digits are the size...01 is one gallon, 32 is 32 oz, 05 is five gallon, 55 is a drum, 99 is a tote.

## **Is the NDC code the FDA approval/registration?**

The NDC code indicates our registration with the FDA to permit packaging, distribution and sale of the hand sanitizer.

## **What is the difference between the emergency/temporary FDA approvals, regular approvals and what VP is doing?**

The temporary policy gives guidance on two potential formulations and how to label them: 75% Isopropyl or 80% ethanol. The remaining ingredients are 0.125% hydrogen peroxide, 1.45% glycerin and the balance is purified water. Absolutely nothing else can be added under the temporary policy, such as fragrance. The regular policy allows a manufacturer to add in other chemicals, such as fragrance, as long as it falls under the OTC Monograph. The OTC Monograph is a set of accepted guidelines set by the FDA and listed out in the CFR (Code of Federal Regulations) that allow you to make the product as long as it is GRASE (generally recognized as safe and effective). To add any additional chemicals, testing must occur to prove its efficacy and irritation effects , which must be disclosed on the label.

## **We say non-sterile, what does that mean?**

It does not mean that the product is contaminated with bacteria or other microorganisms, but that it has not gone through an actual sterilization process.

## **What industry/use restrictions apply to VP's Hand Sanitizer?**

The FDA splits industry use into two categories: Consumer and Healthcare. The product formulation requirements are the same but the labels are different. With our current labeling, VP Hand Sanitizer can be sold to any industry except Healthcare.

## **What equipment does VP use to package the sanitizer?**

VP is utilizing new machines, lines, pumps, and related equipment. All of the equipment is new and dedicated for hand sanitizer and has NOT been repurposed from making race fuel or other products. VP maintains strict separation and segregation of the hand sanitizer operations from VP's other business lines in our Tennessee plant. The packaging lines are new and drained/inspected every day. VP keeps the production area and machinery free of debris and dust. VP also utilizes a filtration process for the product.

## **Is there a fragrance to the sanitizer?**

Fragrance is not added to the current NDC product code. VP is exploring the demand for a product with fragrance, which will entail additional registrations and label changes.

## **What allergy information is available?**

All active and inactive ingredients are listed on the product label and registered with the FDA. Consumers should review the Drug Use section of the label or the SDS before use.

## **VP's hand sanitizer is liquid, while some others are gel. Why did VP select a liquid?**

Mostly just a preference by the consumers requesting VP Hand Sanitizer. The liquids apply about twice as fast as gel and do not leave the amount of residue as a gel.

## **Does the VP Hand Sanitizer include a lotion component?**

VP Hand Sanitizer contains a small amount of glycerin as prescribed by FDA to keep your hands from drying.

## **Is VP Hand Sanitizer primarily for industrial use?**

The formulation for hand sanitizer under the FDA temporary policy does not differ between industrial and consumer use. VP offers its hand sanitizer in large quantities for commercial use, but also offers smaller sizes for a range of retail or consumer use.