



Cestoil Chemical Inc.

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Cestoburn® Treatment Rates in Gasoline

What is Cestoburn®

Cestoburn® is a lead-free and iron-free performance additive that economically reduces tailpipe emissions and simultaneously adds up to 3 octane numbers to straight-run gasoline, lead-replacement gasoline, or unleaded gasoline. Because it is based on manganese, it has low toxicity, does not pollute the environment, and is a drop-in replacement for other octane boosters. It is compatible with all oxygenated and aromatic blending components. See the Cestoburn® product data sheet(s) and MSDS for additional information.

Cestoburn® Product Options

Octane response is related to the concentration of manganese (Mn) added to gasoline. Cestoburn® is available in (2) manganese concentrations, 15.1wt% and 24.4% wt%. Either of these concentrations will produce exactly the same octane response at the same manganese concentration. If the concentration of manganese in Cestoburn® is lower, a higher concentration of Cestoburn® is required to add the equivalent amount of manganese to gasoline. The choice of concentration is up to the user. The performance is identical at equivalent manganese concentration in gasoline. Additional product options can be available upon request.

| | Equivalent To | Mn Conc. (wt%) | Mn Conc. (g/liter) | Mn Conc. (g/kg) | Density (kg/liter @ 20°C) |
|------|---------------|----------------|--------------------|-----------------|---------------------------|
| 8000 | HiTec® 3000 | 24.4 | 337 | 244 | 1.38 |
| 8062 | HiTec® 3062 | 15.1 | 168 | 151 | 1.11 |

Cestoburn® is a registered trademark of Cestoil Chemical Inc. HiTec® is registered trademark of the Afton Chemical Corporation.

Treatment Rate

The recommended treatment rate for Cestoburn® is 18 mgMn/liter of gasoline. At this level, Cestoburn® adds between 2-3 octane numbers to gasoline. The following table lists the quantity of Cestoburn® required to achieve that 18 mgMn/liter concentration in a variety of units. Exceeding this treatment rate can result in malfunction and possible damage to the automobile pollution control systems.

| To add 18mgMn/liter: | 8062 | 8000 |
|---|---------|----------|
| Treat rate (g additive/liter gas) | 0.119 | 0.074 |
| Treat rate (ppm wt additive in gas) | 162 | 100 |
| Treat rate (mg metal/gal gas) | 68.1 | 68.1 |
| Treat rate (g metal/gal gas) | 0.068 | 0.068 |
| Treat rate (32nds of a g metal/gal gas) | 2.2 | 2.2 |
| Treat rate (mg additive/gal gas) | 451.2 | 279.2 |
| Treat rate (g additive/gal gas) | 0.451 | 0.279 |
| Treat rate (lb additive/gal gas) | 0.00099 | 0.000615 |
| Treat rate (lb additive/bbl gas) | 0.0417 | 0.0258 |
| Treat rate (mg additive/liter gas) | 119.2 | 73.8 |
| Treat rate (ml additive/liter gas) | 0.107 | 0.053 |
| Treat rate (ml additive/bbl gas) | 17.1 | 8.5 |
| Treat rate (ml additive/10 gal gas) | 4.1 | 2.0 |
| Treat rate (fluid ounces/10 gal gas) | 0.14 | 0.07 |
| Treat rate (teaspoon additive/10 gal gas) | 0.82 | 0.41 |