

Advantages of Using Weapon Shield Solvent

*by George C. Fennell, L.E.,
Steel Shield Technologies, Inc.*

The advantages of using a solvent-like compound without the presence of VOCs (Volatile Organic Compounds) is of major significance and a huge step in the fundamental aspects of making firearm cleaning and related tasks safe for use by people and around animals.

The science of cleaning the surface(s) and removing burnt powder and residue is twofold, involving the dual action of solvent-like surface spread characteristics which solublize or dissolve a partial amount of the residue, while at the same time using Steel Shield's ABF ([Advanced Boundary Film](#)) Technology, in the pre-formation stages which include the employment of [Van der Waal forces](#) and ionic surface reconfiguration to reject attached particulates from the areas that the solvent fails to reach and affect.

To understand this process, it is recommended that one reads the paper entitled "[Boundary Film Lubrication through Advanced Halogenation Techniques](#)" that I wrote in 1991. This is an in depth look at the general process and mechanism of operation involved.

The important aspects of Weapon Shield Solvent are as follows:

1. Non-Toxic - contains NO toxic chemicals or reagents
2. Non-Mutagenic - no agents, chemicals, or elements, that can induce or increase mutations.
3. Non-Flammable - not flammable; *specifically* : not easily ignited and not burning rapidly if ignited.
4. Environmentally Friendly - not harmful to the environment.
5. Meets California's Proposition 65 - Contains none of the chemicals listed by the State to cause cancer or reproductive toxicity. ([California's Carcinogenic and Toxins List](#))
6. Contains no harmful solvents or volatiles or VOCs (Volatile Organic Compounds) - see below:

Volatile organic compounds (VOCs) are organic chemicals that have a high vapor pressure at ordinary, room-temperature conditions. Their high vapor pressure results from a low boiling point, which causes large numbers of molecules to evaporate or sublime from the liquid or solid form of the compound and enter the surrounding air. VOCs are numerous, varied, and ubiquitous. They include both human-made and naturally occurring chemical compounds. Some VOCs are dangerous to human health or cause harm to the environment. Anthropogenic VOCs are regulated by law, especially indoors, where concentrations are the highest. Harmful VOCs are typically not acutely toxic, but instead have compounding long-term health effects. Because the concentrations are usually low and the symptoms slow to develop, research into VOCs and their effects is difficult.

Solvent - a liquid substance capable of dissolving other substances; "the solvent does not change its state in forming a solution" . Although water is the most common solvent and contains no volatiles, the list below represents the more common variety of chemical solvents used in industry today. Most all of these contain VOCs (Volatile Organic Compounds) which can harm humans and animals.

acetone - A colorless, volatile, extremely flammable liquid ketone, CH_3COCH_3 , widely used as an organic solvent.

dimethyl ketone - the simplest ketone; a highly inflammable liquid widely used as an organic solvent and as material for making plastics

propanone - the simplest ketone; a highly inflammable liquid widely used as an organic solvent and as material for making plastics

chlorobenzene - a colorless volatile flammable liquid with an almond odor that is made from chlorine and benzene; used as a solvent and in the production of phenol and DDT and other organic compounds

carbolic acid-(hydroxybenzene, oxybenzene, phenylic acid, phenol)- a toxic white soluble crystalline acidic derivative of benzene; used in manufacturing and as a disinfectant and antiseptic; poisonous if taken internally

carbon tetrachloride - (**per chloromethane, tetra chloromethane**) - a colorless nonflammable liquid used as a solvent for fats and oils; because of its toxicity its use as a cleaning fluid or fire extinguisher has declined

hexane - a colorless flammable liquid alkane derived from petroleum and used as a solvent

naphtha - any of various volatile flammable liquid hydrocarbon mixtures; used chiefly as solvents

toluene - (**methylbenzene**) a colorless flammable liquid obtained from petroleum or coal tar; used as a solvent for gums and lacquers and in high-octane fuels

xylene - (**xylol**) - a colorless flammable volatile liquid hydrocarbon used as a solvent

This should help to further understand the relevance and importance of Weapon Shield Solvent and the valuable role it plays in today's rapidly changing and eco-friendly world, and especially with the safety of the consumer/user in mind, first and foremost.