

TRIED & PROVEN

# BIO-SOLV<sup>®</sup>

## SOLVENT REPLACEMENT

5 Times Stronger, Lasts 10 Times Longer



*A Tried and Proven Solvent*





# Table of Contents

|   |   |
|---|---|
| About Bio-Solv... A True Green Solvent .....    | 1 |
| Compatibility .....                             | 2 |
| Applications .....                              | 3 |
| Frequently Asked Questions .....                | 4 |
| Chemistry That Works/ KB Values .....           | 5 |
| A Long Term Solution .....                      | 6 |
| Bio-Solv vs. Acetone Testing Expectations ..... | 7 |
| Accessories .....                               | 8 |
| Item , Dimensions, Shipping Information .....   | 9 |

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# Bio-Solv<sup>®</sup>

## A True GREEN Solvent



Bio-Solv is a tried and proven green solvent replacement which will outperform traditional solvents such as Acetone, Xylene, MEK and other solvent based cleaning products. It is ideally suited for a variety of industrial cleaning and surface preparation applications including metal surfaces, paint systems, pumps, overspray, adhesive clean-up, parts cleaning, vinyl graphics and graffiti removal.

Bio-Solv can be easily recycled through simple filtering or distillation for repeated reuse, and the low evaporation rate and high solvency formula can significantly reduce overall solvent usage.

It contains no water and is completely reactive, unlike other green solvents which may contain up to 50% water.



### Features and Benefits

- Bio-Solv is a Class 2 combustible liquid. No special storage requirements.
- Excellent resin and adhesive cleaner.
- Cleans polyester, vinyl ester, and epoxy resins from tools and guns.
- Effective against polyurethanes, varnishes, enamels, and UV curable coatings.
- One cleaner does it all. Multiple solvents not required.
- Suitable for paint preparation and wipe down. Leaves no residue after drying.
- High solvency. Can effectively replace and outperform all petroleum based solvents.
- Low vapor pressure and evaporation rate. Lasts five times longer than traditional solvents.
- Easily recycled and reused. Saves money. Less downstream waste.
- May be diluted with water for extended applications.



### Physical Properties

- Flash Point 132.8°F / 56°C, ASTM D93
- Vapor Pressure .54 mmHg @ 68°F
- Specific Gravity .988
- Evaporation Rate 0.14
- Vapor Density 4.6
- Boiling Point 300°F
- Freezing Point 10°F / -23°C

### A Sustainable Alternative Solvent

- 100% Bio-based, Bio-degradable, and carbon neutral.
- No Ozone Depleting Chemicals (EPA SNAP solvent).
- No Global Warming Compounds.
- No Environmentally Hazardous Ingredients.
- Made from renewable resources.
- Not Listed on California Prop 65



# Bio-Solv<sup>®</sup> Compatibility

Several plastics and metal alloys were evaluated on their resistance towards Bio-Solv. Metals are generally not corroded by the solvent. Prior to any process implementation, actual parts to be cleaned should be tested with Bio-Solv to confirm compatibility. This table summarizes the compatibility of several materials evaluated.

## Compatibility of Materials to Bio-Solv

| MATERIAL              | COMPATIBLE      |
|-----------------------|-----------------|
| ABS                   | No              |
| Aluminum 6061         | Yes             |
| BUNA-B                | Not Recommended |
| Carbon Steel          | Yes             |
| Chloroprene Rubber    | Yes             |
| Kalrez                | Yes             |
| Latex                 | Yes             |
| Magnesium Alloy AZ91A | Yes             |
| Nylon                 | Yes             |
| Polycarbonate         | No              |
| Polyethylene          | Yes             |
| Polypropylene         | Yes             |
| PTFE                  | Yes             |
| PVC                   | No              |
| PVDF                  | Yes             |
| Stainless Steel       | Yes             |
| Teflon                | Yes             |
| Viton                 | Not Recommended |



## Composite Materials

This table is an overview of each of the first three categories is presented for composite materials.

The degree of compatibility of a material is categorized by exposure time:

- visible attack within 1 hour
- visible attack within 8 hours
- no visible attack after 24 hours
- approved for permanent exposure

| No Visible Attack After 24 Hours | Visible Attack Within 8 Hours | Visible Attack Within 1 Hour |
|----------------------------------|-------------------------------|------------------------------|
| Nylon                            | Buna-B-Rubber                 | PVC                          |
| Teflon                           | Viton                         | Polycarbonate                |
| PVDF                             | Silicone                      | ABS                          |
| Aflas                            | EPDM                          | Tygon (special)              |
| Kalrez                           | Chloropren Rubber             | C-flex                       |
| PTFE                             | Epoxy Amide                   | Pharmed                      |
| Polyethylene                     |                               | Norprene                     |
| Polypropylene                    |                               | Polystyrene                  |
| Oil Free EPDM                    |                               | Polysulphate                 |
| Latex Natural Rubber Gloves      |                               | Neoprene Gloves              |
|                                  |                               | Polyamide                    |
|                                  |                               | Polyurethane Paints          |
|                                  |                               | Vinyl Gloves                 |
|                                  |                               | Acrylic                      |



# Bio-Solv<sup>®</sup> Applications



Bio-Solv<sup>™</sup> is an effective cleaner/solvent for many applications, too many to list here. It is recommended that you test Bio-Solv or any cleaner on a surface to verify compatibility with the material being cleaned. You can also reference our compatibility page for a list of materials we have tested.



*Graffiti on Gas Pump*



*Graffiti Removed from Gas Pump*

## Bio-Solv Applications

- Paint Solvent - Ideal for spray gun cleaning paint line flushing flush, mixing tanks and general purpose paint clean-up.
- Removes graffiti from smooth and rough surfaces.
- Excellent wax remover and cleaner for surface preparation for paint, gluing and assembly applications.
- Removes vinyl graphics from boats, signs, trucks and glass.
- Excellent parts cleaner and degreaser.
- Removes soot, grease, oil, grime, diesel fuel and other cleaning chores associated with Automobiles, Trucks and Transportation.
- Cleans and removes adhesive caulking and bedding compounds.
- Cleans glue residues, resin and hardener clean-up.
- Cleans tools and equipment.
- Cleans printing presses, equipment and machinery.
- Cleans toner and copier equipment.
- Removes tar and sap.
- Polyesters, vinylester, epoxy line flushings.
- Metal preparation and clean-up.



*Spray Bio-Solv on Vinyl*



*Vinyl Removal after Application*



*Finished Result*

201-809-7500



# Bio-Solv<sup>R</sup>

## Frequently Asked Questions

**Q: How is Bio-Solv a renewable product?**

A: Bio-Solv is formulated from chemicals derived from plants, mostly corn.

**Q: Does Bio-Solv release VOCs into the atmosphere?**

A: Yes, Bio-Bio-Solv and all solvents, chemicals, coatings and fuels that evaporate and are made of compounds that contain carbon are VOCs (Volatile Organic Compounds). Bio-Solv does not contain or release Hazardous Air Pollutants “HAPs” or Toxic Air pollutants “TAPs” into the air. Everyone is concerned about their “Carbon Footprint” and the amount of carbon or VOCs released into our air because VOC emissions are linked to SMOG, air pollution and global warming. But not all VOCs are the same and not all solvents work in the same way. Two important points to consider when comparing VOC emissions of solvents:

**Evaporation Rate:** Acetone evaporates 6 times (or more) faster than Bio-Solv because of its high vapor pressure. Since a solvent needs to remain liquid in order to clean, Bio-Solv’s low vapor pressure and resulting low evaporation rate is the main reason it lasts 5 to 10 times longer than acetone. This means that acetone emits 5 to 10 times more VOCs into the air than Bio-Solv for the same amount of cleaning (work).

**New Carbon Added to the Atmosphere:** Since Bio-Solv is Carbon Neutral, its use does not add new carbon into the atmosphere. Acetone and other petroleum based solvents made from oil add new carbon to the atmosphere when used. Carbon (VOCs) released into the atmosphere from petroleum solvents are said to be Carbon Positive.

**Q: Bio-Solv contains no HAPs, what is a HAP?**

A: Hazardous Air Pollutants (HAPs) are chemicals which can cause adverse effects to human health or the environment. Congress has identified over 188 of these pollutants, including substances that cause cancer, neurological, respiratory, and reproductive effects. There is a list of HAPs on the EPA website.

**Q: Why is something made from plants said to be Carbon Neutral?**

A: Plants use a process called photosynthesis to convert sunlight and carbon dioxide into sugars needed to grow. When alcohols and chemicals produced from plants evaporate, they release the carbon previously absorbed by the plants used to make them back into the atmosphere. There is theoretically no new carbon load added. This is different than using chemicals and fuels made from fossil fuels which add new carbon to the atmosphere that was previously locked in “storage” within the earth.

**Q: What is a Hazmat?**

A: Hazardous Materials or Hazmats are materials considered dangerous and/or hazardous to people and the environment. Their use, shipping, handling, storage, spill remediation and disposal are strictly regulated and controlled to minimize risks and impact to the environment and people.

**Q: Can I use Bio-Solv without gloves?**

A: Bio-Solv is a powerful cleaner/solvent and will remove the oils from your skin and may cause irritation. As with any cleaner or solvent skin and eye protection are recommended. You should always use in a well ventilated area.

**Q: Is Bio-Solv Flammable?**

A: Bio-Solv is a Class 2 combustible liquid. Combustible liquids are much safer to use in the workplace and do not require special storage consideration like flammable liquids do. Read more about Bio-Solv and Flammability.

**Q: Can Bio-Solv be recycled?**

A: Yes, It is easily recycled using distillation systems, mechanical filtering, parts washing systems and paint gun cleaning systems that capture “dirty” solvent and filter it for reuse.

**Q: Where can I download information about Bio-Solv?**

A: Download a Product Sheet or MSDS Sheet at [www.greenacetone.com](http://www.greenacetone.com)

# Bio-Solv<sup>R</sup> Chemistry That Works



## Cleaning Power of Bio-Solv

The **Kauri-butanol value** (“**Kb value**”) is an international, standardized measure of solvent power for a hydrocarbon solvent, and is governed by an ASTM standardized test, ASTM D1133. The result of this test is a scaleless index, usually referred to as the “Kb value”. A higher Kb value means the solvent is more aggressive or active in the ability to dissolve certain materials. Mild solvents have low scores in the tens and twenties; powerful solvents like chlorinated solvents and “High Sol 10” or “High Sol 15” (naphthenic aromatic solvents) have ratings in that are in the low hundreds.

Bio-Solv has a KB Value of 1000. A KB Value reference chart (see left) shows how that rating compares with other traditional solvents. Also, Bio-Solv has a pleasant fragrance.

## KB Values

| Product          | Value |
|------------------|-------|
| Bio-Solv         | 1,000 |
| Acetone          | 150   |
| MEK              | 150   |
| Toluene          | 105   |
| Xylene           | 98    |
| Perc             | 92    |
| Mineral Spirits  | 37    |
| Kersone          | 34    |
| Stoddard Solvent | 33    |

*Note: MEK and Acetone measures are empirical.*

## The Environmental Movement

In recent years, the environmental movement has gained significant momentum. Federal, state and local government agencies have a clear mission to “improve the environment through regulatory compliance”. One issue that has gained tremendous attention is the management and reduction of VOCs. These are defined as any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions. In simpler terms, this would be something that volatilizes (evaporates or moves to a gaseous state) and shows a propensity to create smog.

It is important to understand that all hydrocarbon solvents are high in VOC's. Aqueous (water based) cleaners are typically low in VOCs however may not be effective in cleaning certain things and since they contain water, may have additional undesirable effects like corrosion and slow drying times.

## Is Bio-Solv a VOC? Yes. Is acetone a VOC?

Yes.

## Exempt VOCs

Some VOCs are exempt from regulation because they are found to produce less ground level ozone therefore contributing less to the creation of smog. Acetone is an exempt VOC because its MIR value (a measure of reactivity with sunlight and ability to create ground level ozone) is below current government limits. This does not mean that acetone does not create ground level ozone but that it is below the current limit. There are discussions about the validity of this limit and whether it will be changed in the future.

## Low Vapor Pressure means less VOCs in the air

It is important to understand the relationship between vapor pressure and evaporation rate because the longer a solvent remains a liquid the longer it keeps cleaning and the less VOCs that go into the air compared with solvents that evaporate quickly. Bio-Solv has a vapor pressure of 0.52 MM HG compared with acetone with a vapor pressure of 400 MM HG therefore it volatilizes or evaporates much more slowly (5 - 6 times) more slowly than acetone. This means that, for the same cleaning operation, acetone will put 5 - 6 times more VOCs into the air than Bio-Solv.

Although Bio-Solv may have a equal or higher VOC content than other solvents, its low vapor pressure translated to less VOCs into the air.

## Low Vapor Pressure means Bio-Solv can be reused/recycled

Bio-Solv can be filtered easily using polypropylene filters that are inexpensive and readily available in sizes from 100 microns down to 1 micron. May be distilled when contaminated by paint using appropriate distillation equipment and may be filtered when using polypropylene filters when loaded with epoxy, vinyl esters, polyesters. Some resin systems will leave particulates not matter how fine the filtering, but it remains effective for tool cleaning and spray equipment applications.



# A Long-Term Solution

## Other Environmental and Safety Hazards to consider

VOC content is certainly an important issue when considering a solvent. However, we must not overlook other issues like flammability, risk of explosion, carcinogens, worker exposure, hazardous air pollutants, ability to extinguish fires, spill containment regulations and hazmat removal.

**Bio-Solv is considered a Class 2 combustible liquid and the vapor is not an explosion hazard.**

**Bio-Solv is not a Hazmat.**

It does not require hazmat shipping, special handling, special storage, spill containment, or Hazmat removal

**A Bio-Solv fire can be extinguished with water.**

Acetone, Lacquer thinner and most other petro based solvents require chemical, CO2 or foam extinguishers.

**Bio-Solv is not on Proposition 65 list of chemicals that cause cancer or reproductive toxicity.**

As an example, California maintains a list of chemicals (California Governors Proposition 65 List) that pose serious health concerns. None of the ingredients of Bio-Solv are on this list.

**Low Vapor Pressure means less VOC in the air**

San Diego County is in the process of passing a new “rule 66” that required solvents to either have a low VOC or low vapor pressure because they realize the relationship between low vapor pressure and the amount of VOCs going into the air.

**No Hazardous Air Pollutants (HAPS)**

The EPA maintains a list of Hazardous Air Pollutants

**Why not just use an EPA VOC-exempt solvent?**

Just because a product has VOC exemption does not mean it is safe to use in all applications. For example, acetone is a VOC-exempt solvent. Acetone is a petroleum-derived product. Because of its low flash point and its high volatility, it can't be used in many applications. Also, compatibility concerns with acetone eliminate it from use in many carpet and furniture product formulas. A chemical can be VOC-exempt and still be on the CA Prop 65 list. Bio-Solv, on the other hand, is safe for you to work with and is safer for your customers.

## Summary - Promoting Health

Bio-Solv has many positive attributes:

- It is not carcinogenic or mutagenic.
- It is biodegradable in its “neat” form and contains no ozone depleting chemicals.
- It is renewable – Bio-Based, made from plants.
- It is not explosive and can be extinguished with water.
- When flushed with water it hydrolyzes to lactic acid and ethanol which immediately begin to bio-degrade.
- It is generally recognized as safe (GRAS) by the Food and Drug Administration (FDA) and thereby is approved for use in food contact applications.
- It is also approved for use as an inert ingredient by the Environmental Protection Agency (EPA).



## Looking at the future

Bio-Solv is a long-term solution for the industry

201-809-7500

# Bio-Solv<sup>®</sup> vs. Acetone Testing Expectations



You will notice differences in the way that Bio-Solv works as compared with acetone. It is important to understand what to expect when you test the product so that your test will be successful. Slight modifications to cleaning processes, like using less Bio-Solv, i.e. drops instead of ounces, will result in successful use of the product.

Bio-Solv has many advantages over acetone, including a safer workplace, healthier environment and cost savings because it lasts many times longer, is reusable and reduces hazardous waste.

Like acetone and other solvents, Bio-Solv has an odor. Some describe it as pleasant and sweet, some say it strong. "As with all solvents, use Bio-Solv only with adequate ventilation."

Bio-Solv evaporates more slowly than acetone. This is the reason that it lasts much longer and is more effective than acetone. In fact, in our 30 hour evaporation test using equal amounts of Bio-Solv and Acetone in open containers, the acetone completely evaporated while less than 4% of the Bio-Solv was lost to evaporation.

**As with all solvents, use Bio-Solv only with adequate ventilation.**

## What will you notice when cleaning tools in Bio-Solv?

- Bio-Solv cleans extremely well.
- After dipping tools and gloved hands in Bio-Solv, the tools and gloves feel oily. They are not. Bio-Solv leaves no film when dry; this is merely an oversaturation of the solvent. If this is an issue, be careful not to dunk your hands as deeply into the solution and use a drying rag or air hose to remove excess Bio-Solv. Always protect your hands with latex or nitrile gloves.
- The sludge that results from cleaning tools used with polyesters, vinylesters, epoxies, polyurethanes or grease will settle to the bottom of the pail or cleaning station. You can pour the clear liquid off the top and reuse it. You can pour off the sludge into a bucket or tray and let it solidify for disposal. Paint will stay in suspension in the Bio-Solv so the Bio-Solv must be distilled in order for it to be reused.



*Cleaning Tools in Bio-Solv*

## What will you notice when you clean surfaces with Bio-Solv?

- You will need to use far less Bio-Solv than acetone because it will last longer on the rag and cleaning surface. It will take longer to evaporate. Use Bio-Solv sparingly and wipe the surface with a clean dry cloth. It will evaporate in less than a minute.

Cleaning Stations are available from Bio-Solv that allow the cleaning of tools in clean solvent while the resins and sludge settle to the bottom of the tank. The sludge can be poured off and allowed to dry/harden for disposal in accordance with local, state and federal guidelines. Bio-Solv adds no hazmats to the sludge.

To filter and reuse Bio-Solv, use Polypropylene filters, which are available in sizes from 1 to 100 microns.



*5 Gallon Cleaning Station*

**For more information contact:**

**[www.jracenstein.com](http://www.jracenstein.com)  
201-809-7500**



# Accessories

## 5 Gallon Tool Cleaning Station



Use to clean tools on the plant floor or in the garage. 5 gallons of Bio-Solv™ will bring solvent level above the cleaning tray. Integral brush cleans bubble rollers and hand tools up to 7 inches wide.

When cleaning composite tools, the catalyzed resin, fiberglass pieces and other contaminants will fall through the tray and settle in the bottom of the tank forming a “sludge”. When tank contains significant sludge, remove tray, pour off liquid solvent for reuse and dump sludge into a tray which usually hardens to a solid form which can be disposed of as solid waste\*. Includes drying tray and lid. Stainless Steel hardware.

*\* Waste disposal regulations vary greatly.  
Check with your local authorities before disposal*

## Environmentally Friendly 32 Ounce Reusable Sprayer



Pour 32 ounces of Bio-Solv into this rugged sprayer and charge with air from your shop's air compressor. Use to spray surfaces, clean parts and degreasing operations. Save money over aerosol cans and feel good about reducing waste!

Metal construction, brass nozzles, and corrosion resistant internal working parts. Fully compatible with Bio-Solv. Sprayers have a 32 oz. liquid capacity.

Partial and complete repair kits are available, as well as a variety of nozzles and extensions.

## Also Available Totes and 55 Gallon Drums.





# Item Codes, Dimensions & Shipping Information

## US LABELS

| DESCRIPTION        | Product Code | CASE | Item Wt # | Item H | Item L | Item W | MP H | MP L | MP W | UPC          | CO  | HS Code      | Hazard?, Need MSDS |
|--------------------|--------------|------|-----------|--------|--------|--------|------|------|------|--------------|-----|--------------|--------------------|
| Pint Bio-Solv      | 35-332       | 8    | 1         | 4      | 2      | 7      | 10   | 11   | 8    | 810395003322 | USA | 2915.50.3000 | N                  |
| Quart Bio-Solv     | 35-333       | 8    | 3         | 5      | 2      | 8      | 10   | 11   | 8    | 810395003339 | USA | 2915.50.3000 | N                  |
| HG Bio-Solv        | 35-334       | 8    | 5         | 10     | 6      | 3      | 12   | 12   | 12   | 810395003346 | USA | 2915.50.3000 | N                  |
| Gallon Bio-Solv    | 35-335       | 4    | 10        | 12     | 7      | 4      | 12   | 12   | 12   | 810395003353 | USA | 2915.50.3000 | N                  |
| 5 Gallon Bio-Solv  | 35-336       | 1    | 50        | 16     | 10     | 10     |      |      |      | 810395003360 | USA | 2915.50.3000 | N                  |
| 15 Gallon Bio-Solv | 35-337       | 1    | 130       | 26     |        | 15     |      |      |      | 810395003377 | USA | 2915.50.3000 | N                  |
| 30 Gallon Bio-Solv | 35-338       | 1    | 230       | 29     |        | 19     |      |      |      | 810395003384 | USA | 2915.50.3000 | N                  |
| 55 Gallon Bio-Solv | 35-339       | 1    | 441       | 35     |        | 23     |      |      |      | 810395003391 | USA | 2915.50.3000 | N                  |
| Tote Bio-Solv      | 35-340       | 1    | 2200      | 48     | 48     | 48     |      |      |      | 810395003407 | USA | 2915.50.3000 | Y                  |
| Individual Packs   | 35-347       | 50   | 0         | 0      | 4      | 3      |      |      |      | 810395003476 | USA | 2915.50.3000 | N                  |
| 40 Ct Canister     | 35-345       | 12   | 1         | 9      |        | 4      | 12   | 12   | 12   | 810395003452 | USA | 2915.50.3000 | N                  |

## CANADIAN

| DESCRIPTION        | Product Code | CASE | Item Wt # | Item H | Item L | Item W | MP H | MP L | MP W | UPC          | CO  | HS Code      | Hazard?, Need MSDS |
|--------------------|--------------|------|-----------|--------|--------|--------|------|------|------|--------------|-----|--------------|--------------------|
| Pint Bio-Solv      | CA35-332     | 8    | 1         | 4      | 2      | 7      | 10   | 11   | 8    | 810395001588 | USA | 2915.50.3000 | N                  |
| Quart Bio-Solv     | CA35-333     | 8    | 3         | 5      | 2      | 8      | 10   | 11   | 8    | 810395001595 | USA | 2915.50.3000 | N                  |
| HG Bio-Solv        | CA35-334     | 8    | 5         | 10     | 6      | 3      | 12   | 12   | 12   | 810395001601 | USA | 2915.50.3000 | N                  |
| Gallon Bio-Solv    | CA35-335     | 4    | 10        | 12     | 7      | 4      | 12   | 12   | 12   | 810395001618 | USA | 2915.50.3000 | N                  |
| 5 Gallon Bio-Solv  | CA35-336     | 1    | 50        | 16     | 10     | 10     |      |      |      | 810395001625 | USA | 2915.50.3000 | N                  |
| 15 Gallon Bio-Solv | CA35-337     | 1    | 130       | 26     |        | 15     |      |      |      | 810395001635 | USA | 2915.50.3000 | N                  |
| 30 Gallon Bio-Solv | CA35-338     | 1    | 230       | 29     |        | 19     |      |      |      | 810395001649 | USA | 2915.50.3000 | N                  |
| 55 Gallon Bio-Solv | CA35-339     | 1    | 441       | 35     |        | 23     |      |      |      | 810395001656 | USA | 2915.50.3000 | N                  |
| Tote Bio-Solv      | CA35-340     | 1    | 2200      | 48     | 48     | 48     |      |      |      | 810395001663 | USA | 2915.50.3000 | Y                  |
| Individual Packs   | CA35-347     | 50   | 0         | 0      | 4      | 3      |      |      |      | 810395001673 | USA | 2915.50.3000 | N                  |
| 40 Ct Canister     | CA35-345     | 12   | 1         | 9      |        | 4      | 12   | 12   | 12   | 810395001694 | USA | 2915.50.3000 | N                  |



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[www.jracenstein.com](http://www.jracenstein.com)



<https://www.jracenstein.com/p/bio-solv-acetone-replacement/89-81m>