

# VEGETABLE CLEANING AGENT

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## INTRODUCTION

There are three ways toxic materials can enter the body: by inhalation, by ingestion or through the skin

Preventing inhalation is the most difficult as using exhausts or masks will overcome this problem only partly. Some gas, vapour or aerosol will still be left in the air you & the people around you inhale. What you do not inhale will pollute the environment.

Instead of using all kinds of equipment it is better to fight the problem at the source. Introduction of Vegetable Cleaning Agents (VCA) as cleansers for printing plates, brushes, metal, glass & plastic objects in general will 'solve' most studio related health problems, & is a true contribution to a cleaner environment.

## ORGANIC PSYCHO SYNDROME

Cleaning printing plates, paint brushes & other equipment is still often done with Volatile Organic Solvents (VOS). Some varieties of VOS are: turpentine, white spirit, litholine, benzene, citro-solve, turpentine, gasoline, etherical oils, & many others. VOS dissolves ink & etching ground but only as long as it is fluid. It evaporates quickly whereafter, new solvent has to be used. Evaporation does not mean the solvent is gone. On the contrary, it is in the air around you & you inhale it with every breath you take. When in your lungs, the vapour is readily taken up in the blood stream & transported to the brain in twenty seconds. Your brain, & the rest of your nervous system, consists mainly of fat. VOS will dissolve this fat & thereby cause disturbances in your functioning, like electrical wire that has been stripped of its insulation. The malfunctioning of your brain shows largely through a combination of psychic or mental problems. The condition is called "Organic Psycho Syndrome" (OPS). Inhaling VOS for the first time, may create feelings of irritation, aggression, restlessness, euphoria (as in sniffing glue to get a high), irritation of the respiratory system, coughing, smarting eyes, confusion & headache.

The most important indications of a lighter form of OPS are: dizziness, sleeping problems (either too much or not enough), fatigue, feelings of depression or melancholy, loss of interest in daily activities, loss of concentration, slowness in activities, feelings of drunkenness. On the weekend & during holidays these complaints usually diminish or may even disappear.

With long-term or chronic exposure brain dysfunction increases & is continuous. Common complaints are: forgetfulness, motor disturbances such as convulsions & forms of paralysis, insomnia, aggression, changing mood, depression & melancholy. Ultimately, there is permanent brain damage, which causes definitive change of personality, permanent loss of memory, paralysis & dementia. Some kinds of volatile solvents affect certain organs specifically, such as the liver or the kidneys, or may cause anaemia, infertility or leukemia.

For further information go to the website of the Organic Psycho Syndrome Association.

## VEGETABLE CLEANING AGENT

### In General

"Vegetable Cleaning Agent" (VCA) is a generic name for a group of chemical compounds made of a vegetable oil & an alcohol, so called 'fatty acid esters'. It is sold under various brand names such as Prifer, Vegeol, Eco-V-Wash, Avisol VCA, Bio-Solv, etcetera. Their main properties are a boiling-point above 200°C & a vapour pressure below 0.1 mbar, which means they are practically not volatile. If you leave a drop of VCA on a glass plate it will spread over the largest possible surface, but it will not evaporate: after three months the VCA will still be there.

As a cleaning agent VCA is suited for painters, printmakers, sculptors & silver smiths. It is not volatile, thus you cannot inhale it. It is a safer cleaner for printing plates, tools & brushes; one which replaces volatile solvents like litholine, kerosene & white spirit, which are dangerous to one's health & to the environment. The use of VCA does require some alterations in cleaning-up methods.

VCA cannot be used in screenprinting as it has no effect in cleaning the dried inks from the screens. It also has no effect on water-based relief printing inks & acrylic paints, nor on dried & hardened oil-based inks apart from softening these. Water-based intaglio printing inks are easily removed with VCA. Although all VCAs are suited as cleansers in printmaking, some types act faster than others.

VCAs are so called 'mono-esters' & should not be confused with 'di-esters' or 'dibasic esters' (DBAs). The latter ones are sold as a replacement for methylene chloride in paint strippers & can be found in some hand cleaners. DBAs are not under discussion here.

#### **HEALTH & SAFETY**

VCAs are not volatile, so there is no danger of inhaling fumes.

Prevent skin & eye contact, rinse with water after contact.

Although VCAs do not produce any fumes they will dissolve the fat in your skin. It is also possible, with prolonged or chronic contact, that surface layers of your skin will start peeling off. Therefore, always wear gloves in handling VCA.

Do not ingest VCA. If ingested rinse your mouth with a lot of water, drink a lot of water & see a doctor.

Clean your hands & mouth before eating, drinking or smoking.

#### **LITHOGRAPHY**

In our experience, VCA is a better one than volatile solvents as it keeps the fatty image in the stone fat. This means that usually two proofs will do before the image holds enough ink. All kinds of VCA, including those containing emulsifiers, may be used. It does not affect the lithographic process; it might even be called fool-proof in cleaning stones. After the normal etching procedures have taken place, lithographic stones & plates may be washed using VCA with water (= wet) or without water (= dry).

#### **Washing Out Wet**

Dampen the gummed stone with a wet sponge.

Pour a little VCA on the stone & gently rub the image drawn on the stone with a rag, adding some drops of VCA if needed. The fatty image will show darker than by cleaning with traditional solvents.

Squeeze a wet sponge above the stone, this prevents VCA getting into the sponge. Rub the stone with a rag. The VCA will not penetrate the stone, but will float on the water, with the crayon or tusche dissolved in it. Remove water + VCA with another rag.

Pour some gum on the stone & rub it all over with a sponge.

The stone can be dampened & inked in the normal way now.

Use sponges for water & gum only, rags for VCA. Hang out your rags to dry after cleaning. The water will evaporate from it leaving the cleanser. Both rags may be used again for the same purposes. The first will be penetrated by the VCA, use it until it falls apart. The second one must be replaced regularly to keep a clean rag. (In practice rags are washed regularly & re-used.)

NB: After printing pour some gum on the stone & distribute it evenly with a sponge. Remove excess gum with an almost dry sponge. Smooth out the layer with your bare hand to prevent 'pearls'. As the VCA is fatty by itself, & does not degrease the stone, no resin & talcum is needed.

#### **Washing Out Dry**

Rub your gum well into the stone; it should not be visible on the image. The gum should be thoroughly dry.

Rub your image with an absolutely dry rag adding VCA drop by drop. Keep this rag in a dry place where it cannot get wet.

Let the VCA dissolve the crayon or tusche.

Rub the stone until you are certain the image has fully dissolved. This may sometimes be difficult to see.

Take another rag & rub the stone again, taking off the VCA with the crayon or tusche. A minimal amount of VCA will be left on the stone, but, because it does not evaporate nor dry sticking to the stone, it does not affect the lithographic process. (Possible remnants of VCA will be taken off in proofing, see below).

Sprinkle some fresh water onto the stone & clean it with the rag, proceeding as described above. (The rag also takes off the VCA, therefore you do not use the sponge.)

If you want to, you may ink up the stone dry. The minimal amount of VCA then left mixes on the stone with the ink & will not get onto the roller. See to it that the layer of gum stays intact, so keep it absolutely dry.

After rolling-up with black ink, take a rubber roller, dampen & roll-off the stone. The mixture of ink & VCA is taken off the stone by proofing.

Rubber rollers are cleaned with VCA & immediately afterwards washed with soap & water, leaving a totally clean roller. A leather roller may never be cleaned in this way as the VCA will penetrate deeply into the leather.

### **INTAGLIO PRINTING**

VCA removes printing ink, wax, oil, vaseline & wax-containing etching grounds. Resin & shellac-varnish should be cleaned with methylated spirits or alcohol. Aquatints made with powdered resin or asphaltum can be removed with VCA by leaving in a tray filled with VCA for about five minutes. After cleaning with VCA, plates are washed with soap & water. VCAs containing emulsifiers may be removed with water only. NB: Detergents are manufactured from mineral oil, soap from vegetable oil or animal fat. The use of soap is suggested.

In a small studio a line-up of a tray of VCA & a tray with water & detergent next to a sink with running water will do well. For minor or occasional work, spread a few drops (!) of VCA over your plate, let it set, rub off, wash with water & soap, rinse with running water. For larger printmaking studios several kinds of equipment are in use. Usually plates are placed in a vertical tank with a frontal opening & brushed with VCA. This tank has a grid at the bottom beneath which the silt-VCA mixture sits. This mixture can continue to be used. Next the plate is moved to a second tank, sprayed with diluted detergent & rinsed with water. This tank may have an overflow, after which the water runs into the sewer.

### **RELIEF PRINTING**

Woodcuts, wood engravings & linocuts inked with oil-based inks can be cleaned in the same way as etching plates. If you are afraid your woodblock will warp, first remove excess ink, then rub your block with a rag with some VCA until more or less clean. Remove the VCA with a damp rag with some soap & finally rub your block with a dry rag.

During proofing some VCA might come from the wood, but after four or five impressions that is gone. With the first proof the ink will not stick well to the block, but that goes also after a few impressions have been taken. To prevent VCA penetrating the wood, you may brush the block with an acrylic coating.

### **CLEANING TOOLS & EQUIPMENT**

VCA can be used to clean any metal or glass surface. Stone surfaces can be cleaned with VCA if they are compact or smoothly polished. Most plastics & rubbers can be cleaned with VCA, if in doubt do some testing. Swelling of rubbers may occur if articles are left immersed in VCA or cleaned frequently in it.

### **Etching Plates**

Pour an inch or less of VCA into the first tray, fill the second tray with soap & water, lay a soft long-haired brush with both trays.

Put your etching plate covered with etching ground or printing ink in the first tray, brush your plate with VCA & let the ground or ink dissolve. This will take half a minute or longer, depending on the thickness of the layer.

Repeat this & let the VCA drip from your plate.

Put the plate in the second tray & wash it with soap, which emulsifies the VCA.

Next hold the plate under the tap & let the water run freely over it.

Wipe the plate off with a clean cloth & put it on the warm oven for drying. This is especially necessary for iron, steel or steelfaced plates, which corrode quickly when wet.

Your plate is now ready for printing. If, however, you want to etch it again it has to be degreased thoroughly before applying any ground. NB: There are fluid rinsers, mixtures of soaps & esters, commercially available which are powerful degreasers & non-volatile.

### **Plates, Slabs, Rollers & Knives**

Hot plates, ink slabs, rollers & knives can be cleaned with VCA & thereafter with soap & water.

To save VCA, first take off the excess ink from the plate or tool with a rag, then smear with a cheap vegetable oil, (sunflower, soy or rape oil - all cheaper than VCA). The oil will dilute the ink.

After wiping off the oil-ink mixture with a rag, smear with just a few drops of VCA & wait half a minute or longer.

Take off the mixture of ink & VCA with a rag, smear again with VCA if necessary.

Wash with water & soap, rinse with water, dry thoroughly.

Note: When cleaning electrical hot plates, avoid water getting into the circuits. Simply use damp (not wet) cloths, do not be free with water. Keep all these washing rags well away from lithographic stones or plates, which must never be touched with soap.

### **Brushes**

Brushes used in painting with oil - or alkyd paint can also be cleaned with VCA.

Fill a jar with some VCA.

Remove excess paint from your brush.

Stir the brush in the VCA & rub it against the bottom of the jar until it is saturated.

Let the VCA dissolve the paint for about a minute.

Squeeze the excess VCA from your brush above the jar.

Wash your brush with soap to emulsify the VCA, rinse it thoroughly with lukewarm water & let it dry.

Now ready to use, your brush will be cleaner than had you used volatile organic solvents.

### **GENERAL REMARKS & CONCLUSION**

*Warning: **Never*** use VCA as a thinner for your inks or paints. It does not evaporate nor oxidize & therefore has a negative effect on the drying of inks & paints.

*Warning: **Never*** let soap come into your VCA. The soap will emulsify the VCA so it cannot be used again. In cleaning your plates & blocks first use VCA, then soap & finally water & never the other way around.

*Warning: **Never*** spill VCA into the machinery of your press. As it does not dry or evaporate it will dissolve the grease.

Do not use VCA for cleaning your skin. Although it is not volatile, VCA will dissolve the tallow which protects the skin & may cause it to peel off. Rub your h&s thoroughly with salad oil, also good for the skin, clean with a rag & wash with a mild soap. Wear rubber gloves in cleaning with VCA.

VCA rather slowly penetrates inks, paints & wax-containing grounds, but on the other h& you need only a small amount since it does not evaporate & stays active. Give it long enough to work (for instance, let etching plates st& overnight covered with VCA) & meanwhile spend your time on doing something else. Repeat the cleaning with VCA once or twice if necessary; for instance, with deeply etched plates containing large amounts of ink. VCA will stay active for a long period, although it will look dirty after a while with a layer of silt on the bottom of the tray. It does not evaporate, so only what sticks to your plates & blocks is taken out. To prevent silt coming onto or into your plate, put a metal grid into the tray; the silt will be under it & the VCA above.

VCA is environmentally safe: it does not evaporate & the product can be broken down by bacteria. However, if you want to clean your tray filled with VCA, treat the contents as chemical waste, because the remains of inks & grounds may be harmful to the environment. Wash the soap suds down the drain; remains of VCA are degraded quickly in the sewer. Graphic studios having abundant deposits should use an overflow.

Mixtures of VCA & High Boiling Solvents (the heavier kinds of volatile organic solvents) are available & cheaper than VCA alone. The High Boiling Solvents take some more time to evaporate but are as toxic as the lighter kinds.

In our experience printing plates, brushes & rubber rollers are cleaner using VCA than other solvents. You need far less of it than of other solvents from, 1/4th to 1/10th in some cases. You can leave it on your dry lithographic stone without any effect at all, something which certainly cannot be done using litholine etc. It takes a while to get used to cleaning with VCA, because of the differences from volatile solvents. Also cleaning itself takes a little more time. You should learn anew to clean your plates & tools using VCA.

Most important is that VCA does not evaporate. You cannot inhale it & thereby harm your mucous membranes, lungs & central nervous system, as happens when inhaling volatile organic solvents. Neither is VCA corrosive & so will not damage your printing plates or equipment.

## **PRODUCERS & SUPPLIERS**

N.B. URLs, addresses & telephone numbers are liable to change. Buying 5 or 10 litre cans reduces the price. New kinds of VCA for the metal industry & construction companies are under research; they have the same qualities as VCA & will be cheaper.

**Australia** - Producer: Chemcolour Australia Ltd, Unit 42/14 Narabang Way, Belrose Office, NSW 2085  
Phone: (02) 9986 1930

**Japan** - Hagiwara-shoten in Tokyo sells "Eco-Wash" from Griso-Chemie, see under Switzerland

**Netherlands** - Suppliers: every better-equipped artists' materials shop, most wholesale dealers for the offset printing industry, several types available, sold per litre & in 5 litre cans.

**UK** - Supplier (not checked): Rapid Wash E-404, Pomeroy Pressroom Products Ltd, Crucible Close, Mushet Industrial Park, Coleford, Gloucestershire GL16 8RE, UK. Tel: +44 (0)1594 837474, Fax +44 (0)1549 837312.

Supplier: Ecosolve plc, DuPont Howson Printing Systems, DuPont (UK) Ltd, Wedgewood Way, Stevage, Hertfordshire SG1 4QN, UK. Tel: +44 (0)1438 734506. Fax +44 (0)1438 734522. Sold per 2 litre pack.

**USA** - Supplier (not checked): Flint Ink Corporation, 245 East Marie Avenue, West St Paul, MN 55118, USA. Tel: (612) 455 1261 or for information on VCA, 1800 7792213

One of the baby oils produced by Proctor & Gamble apparently is a kind of VCA.

**Switzerland** - Producer / Supplier: Griso-Chemie AG, Lettenstrasse 1, CH-6343 Rotkreuz, Switzerland, tel. \*\*-41-(0)41 799 7230, <http://www.griso-chemie.com/>. There is no information on this site on VCA, ask for it through 'Kontakt'. Their VCA is called "Eco-Wash" & is sold worldwide.

## **BIBLIOGRAPHY**

Information on Organic Psycho Syndrome (OPS) can be found at:  
<http://members.chello.nl/~w.vanmidlum/engels.html>

Reports of the European Commission on VCA:  
<http://www.nf-2000.org/secure/Air/F214.htm>

Article on cleaning oiled shorelines with a specific variety of VCA:  
<http://www.cytoculture.com/cytosolarticle.htm>

Printsafe: A Guide to Safe, Healthy & Green Printmaking. Tim Challis. London : Estamp, 1990. A concise & valuable book on all health & safety aspects of printmaking. Despite the developments in safer printmaking since 1990, it is still an accurate & readable publication.

Making Art Safely: Alternative Methods & Materials in Drawings, Painting, Printmaking, Graphic Design & Photography. Merle Spandorfer, Deborah Curtiss & Jack Snyder. New York : Van Nostrand Reinhold, 1993. Covers the whole range of artistic techniques & is very thorough.