

Organic wet waste – A valuable resource

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FROM WASTE TO VALUABLES

The VRS – Magazine



VRS Machines recycle food waste from food preparation and leftovers.



VRS - Piccolo



VRS - Génie II



VRS - 150 «Swiss»

And how does it work?

Well, let us show you.

The great idea

VRS - Value Recovery System shows the modern way of organic waste treatment.

From Waste...



The VRS Machines recycle the food waste from food preparation and leftovers.

...to Valuables



it needs

4,000 KW/h

and also retrieves

4,000 liters of **water.**

For the production of

1,000 kg of fertilizer

with a **VRS - Machine**



In comparison, to manufacture and transport 1,000 kg of nitrogen fertilizer, 2,000 liters of crude oil or about 22,000 KW / h are needed.

The VRS Recycling System

is the solution to manage the food waste...

We believe that the food waste from food preparation and leftovers should be disposed on-site. Our concept is providing an ecological solution to manage the wet organic waste. The VRS - System turns the food waste into organic fertilizer and this creates the complete circle of recycling.

From Waste . . .



Operation principle:

- Loading with wet waste
- Adding 5% to 10% wheat bran or saw dust
- Adding 25 – 50 gr neutralizer
- Automatic operation
 - Water evaporation
 - Sterilization
 - Grinding
- Depending on the volume and the machine
 - 6 – 11 hour running time per cycle
- Final result:
 - Free-flowing powder
 - Water for plants

. . . to Valuables!

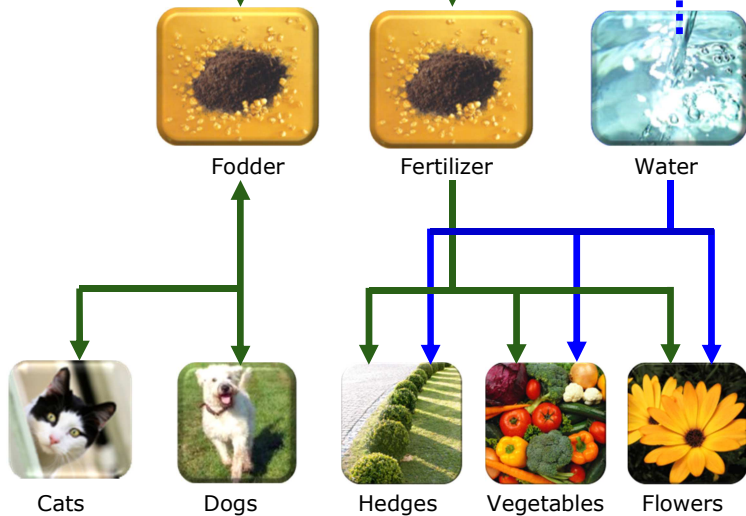
Main current uses:

Fertilizer

- Organic farming
- Vegetable patch
- Gardens
- Interior gardens
- Institutions

Fodder

- Domestic pets



In perfect harmony with Nature!

...and offers the following advantages:

1. No disposal fees.

Instead of high fees for the transport and disposal of organic wet waste, you pay for the VRS machine and the energy it uses. Depending on the moisture content of the material and the local electricity cost, as well as the tipping fee, the machine can be depreciated in 3 to 5 years.

2. Favorable energy balance.

As a result of on-site drying treatment, up to 80% of the volume to be transported can be reduced, which means a favorable energy balance. In addition, this can be optimized since neither the waste nor the final product require cooling, and transportation of bins is eliminated.

3. Improves hygiene.

Since no transport and container exchange of waste takes place, no germs or bacteria are spread. This improves the hygiene crucially, which is very important particularly for hospitals, homes for the elderly and businesses with large scale catering facilities.

4. Small space requirement.

Since the organic wet waste is processed immediately, no freezing storage space is needed; weight and volume of the final product is about 20% to 30% of the original material. Only a few square meters of floor space are required to install the machine.

5. Recuperation of valuable material.

The valuable material contained in the organic wet waste is not simply burned, but recycled to be used in a rational manner. The dry final product is sterile, has very little odor and can be used as fertilizer once it exits the machine.

6. Ecological contribution.

The awareness of environmental protection is greater than ever. Raw materials become inevitably scarce, the prices are constantly rising and sustainability in regards to nature is surely inevitable. With the recycle VRS System, valuable resources from waste are recovered and turned into commercial product with small expenditure. As a result, the VRS system contributes to society with an energy-saving and pollution-free way of recycling, making food waste management meaningful and environmentally friendly.

The relocation of the VRS production facility

Since 2007, we have had our production facility in Penthaz / VD. By the end of 2009, we leased the property located at Chemin de la Rippe 7. In October 2008, we purchased the neighboring property at Chemin de la Rippe 8. Although the condition of the property was not necessarily inviting for the purchase, we decided to take the plunge and purchased the property.



The conversion took about eleven months, and we were able to move into the newly renovated building in September 2009.

Enough space was available and the industrial production of the models VRS - 100 «Swiss», VRS - 150 «Swiss» and Génie II could start. However, over the following years it became apparent that the increasing demand for our machines was a problem as specialized personnel was difficult to recruit.

In September 2011, our offices were destroyed by vandalism. Regardless to those responsible for these acts and by the reason thereof, the damage was not only material. The fear among the staff was alarming. Along with vandalism, there were incidents of break-ins and theft, and neighboring companies were also affected.

The decision to end production in Penthaz was also a result of these incidents. We searched an out-sourcing partner in the German-speaking part of Switzerland and found one in Solothurn.

Upon closing the operation in Penthaz, our main office in Alpenstrasse 4 in Luzern became too small. In May 2012, we moved to Maihofstrasse 76 in Luzern, where we established our office as well as a showroom with VRS machines on 400 m² of space.



The current production capacity is 30 - 40 units a week. The professionalism of the partner does not only allow an industrial production, but also the quality that convinces even the most demanding customers.

For the construction of the VRS Machines, exclusively stainless steel is used. The system is designed in such a way that a regular maintenance service for every 3,000 - 4,000 hours of operation is enough. The filters are easy to change and access to all mechanical parts is simple and quick.



Prior to delivery to the recipient, each machine is tested. A perfect run is ensured.



Interested parties are invited to visit the production site.

L'Hôpital du Jura Bernois, Moutier

The hospital has placed two new VRS - 150 «Swiss», which are operating since September 2012.



An appropriate and convincing example of their use in commercial kitchens.



The recycle of food waste from food preparation and leftovers on-site, brings a customer many advantages.

The VRS machines crush, sterilize the food waste and evaporate the water. As a result, organic fertilizer in the form of powder is obtained through recycling.

Wellness for your flowers

Wellness for body and soul in your honor!

A hotel employee had this IDEA: to give away small nicely designed bags with fertilizer made from the hotel's kitchen and restaurant food waste and produced by VRS machines to hotel guests at check-out.



Multiple applications

VRS - machines are not just for the recycling of food waste, the possibilities of application are endless.

Experiments have shown that it is possible to process the food waste with cardboard and newspaper into powder. The powder can be pressed into pellets by using a small pellet mill.

Mixing the food waste from food preparation and leftovers



with **cardboard**



and **paper**



Produces a coarse powder.



The coarse powder can be processed into pellets by using a small pellet mill for various purposes. At the moment, we are checking whether we can use these pellets for stoves.

Natural pure essential oil of orange - made by VRS machines

VRS machines are now used for extracting essential oil as well. We produce **essential oil from orange peels**, which are obtained from one of our customers. The remaining orange peels are processed into pellets by using a pellet mill and are used as feed at dairy farms.

It's interesting to know that there are so many ways to use the orange oil, not just the way VRS recommends (VRS Revol orange oil works great against wasps).



An excerpt from the literature explains the different applications:

Orange peel contains the essential oil and it protects the inner flesh of the fruit. Neither birds, insects, fungi nor bacteria can harm undamaged fruit.

The essential oil contained in the **orange peel** (limonene) is a vegetal raw material of traditional use mainly as biogenic solvents in paints, cleaners and cleaning products. It works better than turpentine resins, but with less allergy reaction.

Orange peel oil and **orange terpenes** have excellent disinfecting and deodorizing effect, as well as fresh and aromatic orange scent; therefore, it's used as a component in the production of cosmetics. Orange oil is also used in therapeutic dosages in medicine and pharmaceuticals, as well as a fragrance in aromatherapy.

Orange terpenes is prepared in pure form with emulsifiers or diluted in 1/5 to 1/200 parts of water.

It is used to remove contaminants such as oils, greases, adhesives, paints, resins, glue, etc., in machines and machine parts, gears, chains, cables, plastics, as well as in the cleaning of industrial parts, before applying the finish coating to the materials.

Orange terpenes is also routinely used in the cleaning of commercial and industrial establishments, hospitals, medical and dentistry clinics, and laboratories, as well as households.

Orange terpenes is also used as a universal stain remover in fabrics, upholstery and carpets.

Since it can be prepared with alcohol and emulsifiers, **orange terpenes** can be diluted in water as desired, thus representing a very inexpensive cleaner and almost in unlimited amounts, to clean stains of any kind.

Hard to imagine a better way of recycling!



Smoked salmon oil - produced by VRS machines

Omega-3, as important as Vitamin C

Salmon oil contains Omega-3 and Omega-6 fatty acids for the daily dietary supplement.

Vitamins and minerals are known as essential nutrients, and a deficiency can cause diseases. Omega-3 fatty acids are essential (life-essential) and as vital for the body, as Vitamin C.

The Omega-3 fatty acids contain important nutrients (alpha-linoleic acid (ALA), eicosapentaenoic acid (EPA), and docosahexaenoic acid (DHA)) and since the human body cannot produce them by itself, it depends on getting these nutrients from food.



According to global published studies and reports widely disseminated by the media, Omega fatty acids, affect the inner cell's layer in blood and lymphatic vessels, the important function of white blood cells, the clotting of blood, inflammatory and immunological reactions, the function of smooth muscles, as well as the distention and

contraction of intestinal tract muscles. Giving credit to the widespread statements, Omega-3 is believed to have a soothing and protective power (arteriosclerosis, Arthritis, Ulcerative colitis, bowel disease, Diabetes mellitus, Development of the brain and vision in babies, Heart Bypass, Heart attack, hypercholesterolemia, Hyperlipoproteinemia, Crohn's Disease, migraines, Multiple sclerosis, eczema, psoriasis, rheumatoid arthritis, tumor Formation).

Use of smoked salmon oil in the kitchen

Smoked salmon oil is excellent in the preparation of various types of food, as the tasty smoked salmon flavor does not evaporate when heated. Different types of food can be prepared, from a simple sandwich filled with cream cheese mixed with smoked salmon oil to blue mashed potatoes mixed with smoked salmon oil and whitefish caviar on top.



TIPS

Aperitif: Puff pastry cups filled with egg yolk mixed with a bit of smoked salmon oil.

Salad: Smoked salmon oil in vinaigrette drizzled on mixed or green salad.

Appetizer: Smoked salmon oil on horseradish mousse with salad and/or toast.

Main course: Pasta with red pepper colored on a smoked salmon cream sauce and fresh leeks.

Dessert: Yoghurt flavored with smoked salmon oil, which can be served for breakfast too.

The VRS Machines

VRS – Piccolo

Power connection:	3-pin plug, 230V, 50 Hz
Energy consumption:	approx. 0.45 kWh/ cycle
Capacity:	cycle of 1 kg in less than 2 hours
Dimensions:	
Length	270 mm
Width	380 mm
Height	430 mm
Weight	13.50 kg



VRS – Génie II

Power connection:	AC 230V, L, N, PE, 50 HZ
Energy consumption:	~ 1.0 kWh/ 1 l of water evaporation
Capacity:	20 - 30 kg / day, 2 cycles of 10 - 15 kg, in about 6-8 hours
Dimensions:	
Length	520 mm
Width	740 mm
Height	840 mm
Weight	90 kg



The VRS - VRS Genie II is also available as VRS - Génie II Twin. Two VRS - Genie II can be combined into one unit, so the daily capacity gets doubled up with convenient loading time choices.

VRS - 100 «Swiss»

and

VRS - 150 «Swiss»

Technical data

Power connection:	AC 400, 3xL, N, PE, 50 Hz, CE 32A
Energy consumption:	~ 1 kW/h / 1 l of water evaporation
Dimensions:	
Length	1530 mm
Width	900 mm
Height	1070 mm
Weight	520 kg / 575 kg

Capacity of VRS - 100 «Swiss»: 100 kg/day, 2 cycles of 50 kg in about 8-11 hours

Capacity of VRS - 150 «Swiss»: 150 kg/ day, 2 cycles of 75 kg in about 8-11 hours



The VRS - 150 "Swiss" is also available as VRS - 150 «Swiss» Twin. Two VRS - 150 «Swiss» can be combined into one unit, so the daily capacity gets doubled up with convenient loading time choices.

VRS - PRO ECO - Vacuum packaging machine

Machine for vacuum packaging of diapers and textiles to prevent unpleasant odors and volume reduction, suitable for homes for the elderly and hospitals.

Technical data

Power connection:	230V 50~60 Hz 1 KW
Energy consumption:	approx. 20 watt/ sack
Capacity:	Processing time +/- 1 Minute.
Dimensions:	
Length	750 mm
Width	920 mm
Height	780 mm
Weight	144 kg



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