

Green Specifier

Promoting, Financing, Sustainable Products, Technology and Services

Plastic Recycling

Who We Are

- ▶ Green Specifier was originally founded in 2002 by Richard McMillan as a business to promote environmentally friendly products to Specifiers in the architectural, design and engineering markets in Sydney.
- Manufacturers and Suppliers of enviro-friendly products were approached, and Green Specifier represented these products to specifiers.
- In 2018, established relationship in the sustainable funding sector Green Specifier started introducing within the capacity as a facilitator of low interest loan options to businesses wanting to grow across the globe.
- Green Specifier has been providing consulation and business planning
- Setup Charitable foundation Saffron Aid

What We Do

- ✓ Green Specifier promoting and marketing selected enviro-friendly products that help reduce energy and water usage, plastic, carbon and other pollution.
- ✓ In 2018 we commenced the service of acting as the introducer for a reputed group of lenders of low interest US dollar loans to clients that are looking to expand operations across the globe.
- ✓ Green Specifier works with businesses and organisations that are working towards achieving the United Nation's Sustainable Development Goals (SDG)





































Product Ranges We Represent

Green Specifier represent products, technology and services such as (but not limited to):

- Carbon Offsetting
- Plastic Recycling Technology
- Led Lighting
- Solar Technology
- Water Saving Devices
- Commercial and Industrial Roof Ventilators
- Commercial Cleaning Products
- Enviro-friendly building product, material or technology
- Loans to sustainable businesses and organisations

Projects and Clients

Some of our clients include:

- West Australia Art Gallery
- Sheraton Hotel, Sydney
- Bovis Lend Lease
- Accor Group, Australia
- Qantas
- Virgin Australia
- Sydney Water
- Air Road Direct
- Sydney Water
- Mirvac

Plastic Recycling

Green Specifier has worked closely with Plastech Recycling to help develop the Plastech Mixer Melter. Green Specifier is the sole agent for Plastech in India, Pakistan, Bangladesh and Myanmar.

This technology uses an innovative, unique, and patented process using mechanical (frictional) heat to simultaneously melt and mix used plastics so that infeed mix materials (plastic waste) generally do not require washing, blending, drying, shredding, granulating, or pelletizing beforehand.

This process significantly reduces the handling and processing costs associated with in-feed material preparation and ultimately produces extrusion-ready plastics at an estimated processing cost of \$400 per tonne, up to 60% cheaper than conventional recycling methods.

With waste plastic now having a value that can be recognised and easily upcycled into value-added products, both developed and developing economies can benefit from recycling plastic instead of disposing of it.

Plastic Recycling

The Plastech Mixer and Melter machine will:

- ► Take all types of plastics, from 1 7
- No need to separate before processing
- Rigid and Soft Plastics together if required
- No need to wash/dry the waste material before processing
- Saves Time and Energy

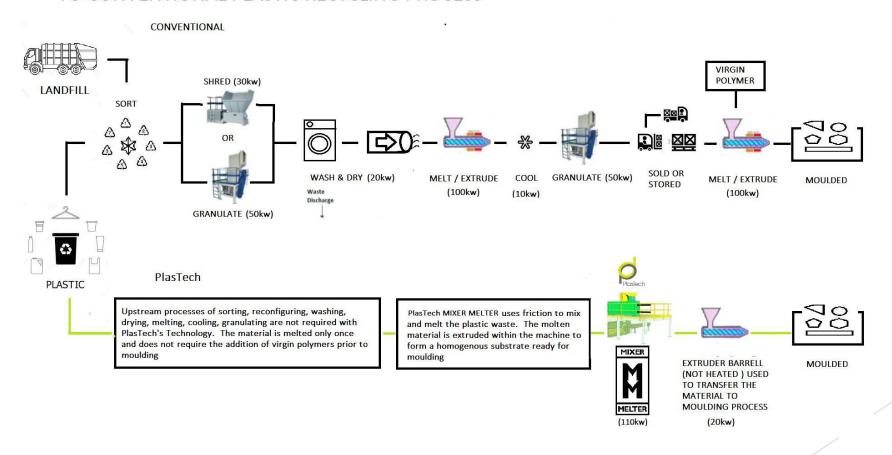
Benefits

- ▶ 50% of energy requirements of competing technologies
- Reduced Processing Cost
- Reduce Carbon Footprint
- Use of low grade and low-cost feedstock
- Reduces input costs
- Recycles materials that no other technology can
- Products produced made can be re-recycled over and over again
- Extends life of the polymer resource
- Reduces dependency on virgin plastics



Comparison of the Recycling Processes

COMPARISON OF PlasTech's DISRUPTIVE TECHNOLOGY TO CONVENTIONAL PLASTIC RECYCLING PROCESS



Methods of Moulding

- Multiple types of moulding can be used on the Plastech Mixer Melter:
- Extrusion
- Injection
- Rotational
- Compression
- Casting





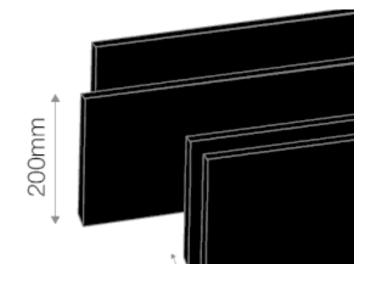
Potential Products

- Car bump stops for parking stations
- Tomato and tree stakes
- Bollards
- Plastic wood for fences, decking etc
- ► Hoarding for construction sites
- Paving
- Roofing
- Low-cost modular huts
- ► Tubing for irrigation
- Water and feed troughs for farms
- Water tanks

Plus multiple more products







Plastic Wood







Agriculture







Cityscape furniture

Green Specifier Team



Richard McMillan (Managing Director)

Richard is the founder of Green Specifier and has over 30 years of experience in the Australian sustainable market working in marketing, finance and project management. Founder and Chairperson of the Australian Not for Profit Saffron Aid. Richard has Bachelor of Education, Bachelor of Entrepreneurship, and a Masters of International Development



Sanjay Bhatia (Director and Operations Manager)

Sanjay has over 30 years of experience in India and Australia, joined, Green Specifier in 2019 after a career in Technology, Retail, Project Management in the Australian Sustainability market and Investment. With expertise in planning and operations Sanjay is focusing on expanding Green Specifier into the sustainable loans market. Sanjay has Bachelor of Commerce, Bachelor of Law.

Key Contacts

Richard McMillan

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- > 0411 703 044
- <u>richard@greenspecifier.com.au</u>

Sanjay Bhatia

- Director and Operations Manager
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- <u>sanjay@greenspecifier.com.au</u>
- www.greenspecifier.com.au



Green Specifier

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Solar

Solar Capabilities

- Using both Australian and international solar panels and batteries Green Specifier can instal and service:
- Domestic installations
- Commercial installations
- Solar farm installation
- Battery installation
- Connection to electricity network
- Construction of micro grid networks

Commercial

- Installation on a logistics company's warehouse in Sydney Australia.
- 99kW Grid-connected system
- REC Solar Panels
- Fronius Inverter





Domestic

- Installation in Sydney Australia.
- ► 6.6kW Grid-connected system
- Tindo Solar Panels (Australian made)
- Fronius Inverter
- Tesla battery





Solar Farm

- Installation in Gatton Australia.
- ▶ 3.2 mW Grid-connected system
- Tindo Solar Panels (Australian made)
- Selectronic Inverters (Australian made)
- Power Plus batteries (Australian Made)



SMART SOLUTIONS FOR WATER CONSERVATION



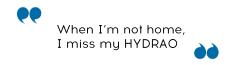
ECOLOGICAL SHIFT

70% savings on hot water

PROFITABILITY

Return on investment in 6 months

POWERFUL USER EXPERIENCE











SELF-POWERED AND EDUCATIONAL WATER MANAGEMENT SOLUTIONS TO MONITOR AND COMMUNICATE ABOUT YOUR ENVIRONMENTAL IMPACT

- · Patented **SENSORS**: hydro-powered and connected
- · 70% **SAVINGS** on water and energy
- Tools to COMMUNICATE about your savings and **CHANGE** behaviours



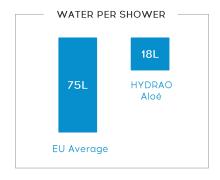
HYDRAO Showers drive:

-150€ SAVINGS

Measured per person per year

An average shower in the EU is around 75L. HYDRAO Aloé monitored showers have an average of 18L

HYDRAO leverages on behavioural change and on its water efficient design to obtain these results.



O.42€ SAVINGS PER SHOWER









[...]. The effect is stable over time. The technology used is easily scalable to larger groups, and highly cost effective.

Pr. Goette, in the study report. « Understanding resource conservation campaigns: Evidences from a field experiment





HYDRAO provides real-time feedback on water usage through a colour code for helping users to manage their water and energy spending.











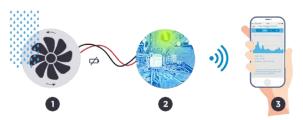
OUR TECHNOLOGICAL EXPERTISE

Self-powered water management solutions

BATTERY-LESS OPERATION

Patented system: smart and water-powered

- 1. Thanks to the water turbine, no battery needed!
- 2. HYDRAO lights change colors based on water usage
- 3. and connects with the app to sync data and monitor savings.

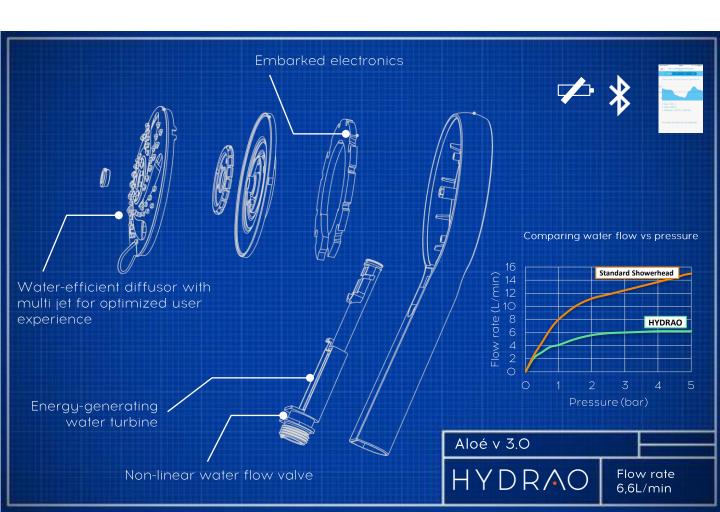


MEASURE YOUR SAVINGS

Thanks to our sensors wireless connectivity and our app

COMFORT AND WATER EFFICIENCY

Water-efficient design (6,6L/min) while maximising comfort (multi jet) and design innovation





OUR RESULTS

HYDRAO drove, in 2018, savings of:



x 200 Or 500 000 m³ of water



x 2900 Or 2900t of CO₂



OUR SOLUTIONS



OUR TEAM

Grenoble-based company founded in 2015



Today 14 people of whom half are engineers

You have a project? Contact us!

















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enjoy a deck, landing or patio..anywhere you go

DRAMATICALLY ENHANCE YOUR OUTDOOR LIVING EXPERIENCE WITH UDECXTM MODULAR, PORTABLE AND DIY SYSTEM



DECK-IN-A-BOX — EASY DIY PATIO DECK SYSTEM

The UDECX surface is composed of one meter square pads. Pads are placed on top of piers and locked into place with a simple hand tool. Shims and risers enable the system to be leveled on uneven terrain.

The modular design allows the UDECX system to easily adapt to future needs. Available in Red Cedar or Flint Grey. The dimensions of the assembled boxed kit is 2 meters by 3 meters. Each "deck-in-a-box" comes complete with all the needed components. Easily expand with additional kits or individual components.







"I researched decking for months and I am so glad I bought UDECX. I am stunned at how easy this was to install (I am not a handyman and did it alone) and how great the quality is...even more importantly, the wife loves it."



Reduce Your Power Bill





AUDITING YOUR ENERGY
ALLOWS FOR YOU TO BECOME
MORE ENERGY-EFFICIENT AND
IN DOING SO, REDUCE THE
COSTS OF RUNNING YOUR
BUSINESS.WE CAN LOOK AT
HOW YOUR BUSINESS USES
ENERGY AND RECOMMEND
HOW TO IMPROVE EFFICIENCY,
AS WELL AS ASSIST IN
ALTERNATIVE ENERGY SUPPLY
AND GENERATION.

Our Advisors will help you to evaluate and implement changes to:minimise operating costs reduce carbon emissions raise your business profile



It is important to involve staff across the business when implementing changes to ensure success in achieving energy efficiency and cost savings. We can help you engage and communicate with your team to build awareness on best practices.

Our Level 1 and 2 energy audits are in accordance with AS/NZS 3598:2000.



Contact us;

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LED LIGHTING - WAREHOUSES, CARPARKS

SOLAR - OUTRIGHT OR PUBLIC PRIVATE PARTNERSHIP

CARBON ASSESMENTS



PolyWaste Substrate Properties

Introduction

PolyWaste substrates are produced from co-mingled plastic feed materials that can include thermoplastic materials of all types. Generally the feed materials are predominantly LDPE, HDPE and PP but all other thermoplastic materials can be introduced including ABS, HIPS, nylons, PET, polyesters, urethanes, polycarbonate and more. The co-mingled feed material is homogenised within the unique PolyWaste mix-melt process, producing a mouldable/extrudable substrate with valuable mechanical and physical properties.

The substrates are suitable for use to produce extruded products or injection moulded products. It is a low to medium flow injection moulding grade developed for rigid components requiring good impact strength. It generally exhibits good UV resistance where used food packaging and used consumer goods have been utilised within the feed materials. Additional stabilisation can be added where feed materials are largely not already UV stabilised.

Typical Properties

PolyWaste Substrate Properties				
Typical/Expected (from co-mingled feed)				
Property	ASTM Method	Unit	Value Range	
Specific Gravity	D792	g/cc	0.92 – 0.98	
Melt Flow Index	D1238	g/10 min	5 – 25	
Mould Shrinkage	D955	%	0.7 to 2.0	
Tensile Strength	D638	MPa	> 16	
Young's Modulus	D790	MPa	200 approx	
Thermal Expansion Coefficient	D696	per °C	1 x 10 ⁻⁵	
Recyclability			100%	
Insect Resistance			High	
Termite Resistance			100%	
Weather Resistance			High	
Chemical Resistance			High to most chemicals	

Processing

Injection Moulding

PolyWaste substrates can be processed in moulding machines provided any potential non-plastic contaminants (metals, etc) are verified as not present or are suitably screened. The processing temperature as the melt leaves the die should be between 150-200°C.

Mould temperatures are usually between 20-60°C with the higher temperature producing a better surface finish. Hold injection pressures for minimum shrinkage.

Extrusion Moulding

PolyWaste substrates are suitable for extruding panels and profiles of various sizes for the construction and building industry. The extrusions serve as a timber substitute in a myriad of applications where structural certification is not required. Colouring can be added during the extrusion process although a painted finish is preferred in some applications.

Applications

The homogenised PolyWaste process substrates are suitable for the manufacture of a wide range of products including:

- Furniture items;
- Decking;
- Raised garden beds;
- Pots;
- Mouldings;
- As a timber substitute;
- Car bump stops;
- Kerbing armour;
- Weather and rot resistant infrastructure items;
- Sheeting and panelling;
- Tiles, pavers; and
- Much more.

Safety Considerations

Handling

PolyWaste comingled substrates may generally be regarded as biologically inert and chemically unreactive and present no toxic hazard, either from skin contact or inhalation under normal conditions. However, contact with molten polymer should be avoided in all circumstances.

Processing

When compounds are heated during processing traces of fume will be produced from decomposition or oxidation. Any hazards can be eliminated by ensuring adequate fume removal and all work areas should be thoroughly ventilated. In some circumstances where odour may be generated from contaminants or polymers containing halogens are present in significant quantities, the ventilations system may require the addition of dry scrubbing system (eg activated carbon or similar).

Fire Precautions

In common with most other organic polymers PolyWaste substrates are combustible. However, fire retardants can be added to specification during compounding in order to achieve many fire resistance ratings.



Water - Energy Nexus

1

Vortex Process Technology (VPT) for Cooling Towers Physical Water Treament to Reduce Water - Energy - Chemicals

Background

Water in cooling towers needs to be treated to control microbial growth, scale formation, and metal corrosion. Also, the heat transfer performance of the cooling tower must also be maintained, which correlates to the energy consumption. Approximately 98% of the US cooling towers use only chemical water treatment.

The use of Physical Water Treatment technologies for water-cooled cooling towers is growing in the U.S. and has been more widely used primarily in the EU where restrictions on chemical discharge and environmental policies encouraging lower chemical usage are wide-spread.

The innovation, developed by the manufacturer Watreco AB, Sweden, has achieved reduced water and energy usage and lowered chemical usage in the cooling towers in Europe where the technology has been developed and deployed at breweries, data centers, refrigeration warehouses and other commercial locations. The VPT solution has also been successfully deployed and verified at SCE customer sites that include, a biotech company, hospital R&D facility and large hotel resort. VPT for cooling towers is intended to supplement traditional water treatment practices with a more environmentally sound, consistently repeatable and efficient approach.

Funding for the projects originated from the SCE Emerging Products Group and the California Energy Commission's Electric Program Investment Charge (EPIC) Program. These investments follow an emerging technology innovation pipeline design, funding technology demonstration and deployment, and market facilitation for commercially ready but under utitlized technologies. The goal is to create new energy solutions, foster innovation, and bring clean energy ideas to the marketplace.

SCE customer assessments

Biotech

and

Resort





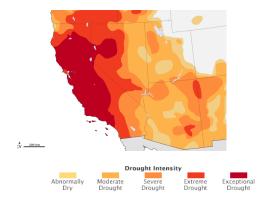
Deployed at installations in the EU: Breweries, Food Processing, Commercial Office,

Currently installed by 50+ customers in in the EU

Data Centers, Ice Rinks, Chemical Manufacturing

3,285,000

This is the annual total gallons of water saved from Califorina assesment projects





Energy Advisory www.cypress-ltd.com support@cvp-res.com https://www.h2ovortex.com

End Use Applications



Save Water Energy and Chemicals



Prevent / Remove
Calcium Scale



Higher Yield Less Water



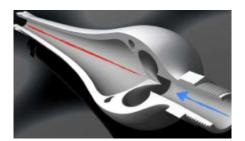
Hard Clear Ice
Use Cold Water
Saves Heating and Chiller



Mix Efficiently

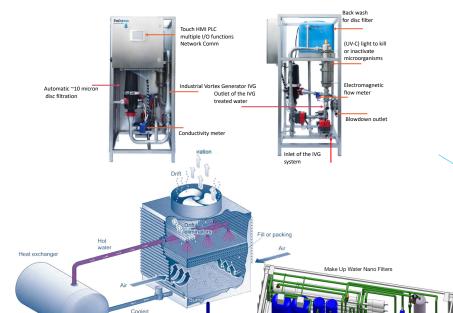
Aerate











Side Stream VPT Treamer

The VPT for Cooling Towers can be applied as a basic side stream treatment or with nano-filters to achieve maximum COC



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Technical Summary- Cooling Towers

- Eliminates or significantly reduces lime scale in water treated using the VPT-CT system. Soluble forms of calcium such as calcium bicarbonate (CaHCO3)2 are transformed into calcite and aragonite, which do not attach to pipes, nozzles or other warm surfaces and which are also removed.
- 2. Removes micro-bubbles of air, air, resulting in decreased viscosity from 5-17%, as well as better heat transfer than untreated water
- 3. Scale control and partial bacteria cell wall disintegration
- 4. Removes unbound gas (air, CO2) from the water by a vacuum in the middle of the vortex controlled cavitation due to the design of the unit
- 5. Calcium bicarbonate (CaHCO3)2 in the water is forced to precipitate out in the form of calcite (CaCO3) primarily aragonite crystals which have minimal scaling properties does not precipitate on surfaces
- 6. Decrease viscosity due to removal of micro-bubbles of ~5%-18%; improves heat transfer
- 7. Nano -Filtering: Automatic, continuous filtering of the make up and cooling water
- 8. UV-C microbiological control system
- 9. Performance Monitoring: Industrial PLC control with sensor inputs with both local cloud based remote monitoring, alarming, trending and reporting to control COC based on water quality conditions

Based on a review of CEC data we have estimated that 6,985 GWh or \sim 35% out of the total 20,061 GWh used in California on cooling and refrigeration is for water- cooled equipment. We also estimate conservatively that 1.17 Billion Gallons of potable water is used per year in cooling towers for commercial buildings alone. Given California's current prevailing drought conditions, this is a prominent concern.

Benefits for Cooling Towers

Water savings

- 1. by operating the cooling towers at higher cycles of concentration (COC @ 8 10 with optional nano-filtration)
- 2. Can reuse up to 100% blowdown water for other purposes such as irrigation and lowers onsite waste water treatment requirements
- 3. Avoids waste treatment and pumping costs

Reduced chemical use

- 1. Lower usage of purchased chemicals and services
- 2. Reduction of toxic elements in blowdown water less stress on water treatment and runoff

Save energy

- 1. Degrading and preventing cooling tower scale- Estimated from 2% to 5% improvement at site and has better heat transfer properties
- 2. Additional upstream kWh/kW savings from reduced water pumping and water treatment

Ongoing monitoring of performance

- Performance Monitoring and integrated PLC control system
- 2. Consistent with Best Practices
- 3. Cloud based dashboard, alarming, trending and reports

Example at Heineken: "After deployment of the VPT-CT, the evaporative condenser can be operated without chemicals. The application was without the formation of lime scaling, corrosion or microbiological activity. By recycling the tower water it is possible to achieve 100% water savings by deploying rinse water from the brewery."



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Example Results - Cooling Towers

Based on detailed Measurement and Verification following the IPMVP standards and conducted by and independent Professional Engineer the VPT as applied to cooling towers has shown promising results.

Location: Hospital R&D Facility, Duarte CA, 240 Ton Chiller, Fall of 2015

Challenge: Demonstrate reduced water, energy and chemical usage by implementing an innovative 'physical water treatment' technology.

Solution: SCE sponsored Emerging Technology Assessment installation of the VPT technology and a 3-month detailed Measurement and Verification

Results:

240 ton

Reduced Energy Use	3.8%
Reduced Chiller Use	9%
Reduced Water Use	42%
Reduced Chemical Use	42%

Location: Resort, Rancho Mirage, CA

Challenge: Demonstrate reduced water, energy and chemical usage by implementing an innovative 'physical water treatment' technology.

Solution: California Energy Commission EPIC project to measure and verifty energy, water and chemical reductions from VPT

Results:

900 ton

Reduced Chiller Use 5.4%
Reduced Water Use 30%
Reduced Chemical Use 33%
Improved COC from 2.3 to 7.5 COC
Expected ROI 48% 2.3 Yr Payback

Location: Thousand Oaks, CA One of the world's leading biotechnology companies

Challenge: Demonstrate reduced water, energy and chemical usage by implementing an innovative 'physical water treatment' technology.

Solution: California Energy Commision EPIC project to measure and verifty energy, water and chemical reductions from VPT

Results

2000 ton

Reduced Chiller Use 6.5%
Reduced Water Use 15%
Reduced Chemical Use 50%
Improved COC from 3.6 to 8 COC
Expected ROI 43% 2.5 Yr Payback

Example: Existing VPT-CT Installed on EVAPCO towers in Europe

• 3,500 tons operating currently at 12 COC and zero chemicals









Water - Energy Nexus

Vortex Process Technology (VPT) for Agriculture, Aquaculture, Hydroponics

INNOVATION TO TRANSFORM TO A HEALTHY. SUSTAINABLE AND COST EFFECTIVE

GROWTH SYSTEM

Challenge

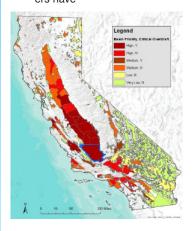
Ensure that Food, Energy and Water resources are sustainable and reduce energy-water use and improve crop productivity.

Context

Agriculture is the largest consumer of all available freshwater: 70% of "blue water" withdrawals from watercourses and groundwater are for agricultural usage - and it is growing. In California major aquifers are vulnerable and in decline, can have minerals and other substances harmful to crops... And the drought continues.

We offer technology that supports healthy growth, reduce toxins and improve production

- Optimization of water and nutrients
- Saving water and energy resources
- Maximizes the environmental benefit to natural resources
- Offers small micro-growers the same high tech corporate growers have





Industrial Vortex Generator IVG

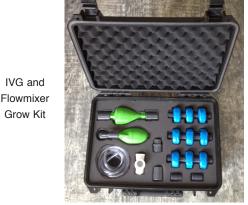




Aeration - add sO2

IVG and

Grow Kit





Example: Greenhouse at Advanced Horticulture Company

Challenge: Study the effect of using IVG on enhancing the productivity and crop properties under the local greenhouse conditions. Improve vield with same amount of water

Results:

- Faster growth growing +2 cm higher
- Equal number of seeds creating +10%
- Crop yield was +6.35% higher
- Lower rejection rate of nearly -20%
- +5% increase in the weight of the roots

Example: Swedish University of Agricultural Sciences

Challenge: Examine if treatment of the water used in nutrient solution with the IVG and Flowmixer impacts early growth of plants compared with nutrient solution based on nontreated water

Results:

- Faster growth
- Greater leaf area and weight
- Greater plant height and stem width

Example: Pre-treat RO System

Challenge: Assess impact of Vortex Generator as a pre-treatment for RO system

.Results:

- Water reject 25% vs baseline 40-50%
- Lower energy use
- Chemical savings 25%
- Extended life of RO membranes 1 yr.
- Removes 85% of the calcium

Effects:

- Softens water, introduces oxygen micro-bubbles to the water, improves water/soil penetration, bonds more completely with plant nutrient inputs, enhances root and plant growth, induces seed germination, saves 10-20% on water consumption.
- Lessens need for plant fertilizers, insecticides, herbicides and fungicides by increasing solubility of inputs, lessens need for wetting agents, saves 30-50% on chemical inputs.
- Increases plant yields due to improved nutrient absorption, increases plant vigor and disease resistance, productivity boost of 10-30%
- No adverse by-products created, no energy-input requirements, benefits health of people, plants and
- Oxygenation of irrigation water can lead to yield increases varying from 10-80%, depending on crop type and soil type. It can also increase water efficiency with savings of up to 27% compared to nonoxygenated water.

Awarded to EU Technology Provider



Created/Patented by Watreco A.B., Sweden

(http://www.watreco.com/engelska.php)

Worldwide Distribution H2oVortex s.a.r.l., Luxembourg

(http://h2ovortex.com/?lang=en&page=homepage)

USA: support@cyp-res.com

https://waterenergynexus.us

