

## PERSIST® PAF LIQUID PLANT AND SOIL ENHANCER

### 1) PRODUCT DESCRIPTION

Persist® PAF is produced in California from 100% pistachio shells using VGrid's proprietary biomass gasification technology. PAF is a blend of beneficial organic acids, phenols, and other biomolecules that may enhance plant growth, stress response, seed germination, nutrient availability, and crop yields.

Across a wide variety of crop and nursery trials, PAF has shown a significant positive impact on plant and soil productivity. Additionally, abundant academic research supports using pyroligneous acid, sometimes called wood vinegar, to increase crop yields, cut fertilizer costs, and improve soil productivity over the long term.

Persist PAF® is available from directly from VGrid Energy Systems and select distributors. The product is offered in 32-ounce bottles, 2.5-gallon bottles, and 275-gallon IBC totes. Contact VGrid for bulk pricing. Retail customers can also purchase the product online at <https://persistproducts.com/shop-for-persist/>.



### 2) CERTIFICATIONS AND APPROVALS



# PERSIST

## TECHNICAL DATA SHEET

### PERSIST PAF LIQUID

VGrid Energy Systems, Inc.  
513 Calle San Pablo  
Camarillo, CA 93012 U.S.A.  
info@vgridenergy.com  
+1 (805) 482-9040

### 3) APPLICATION RATES AND TIMING

#### Row Crops (*corn, soybean, wheat, strawberry, pepper, tomato, carrot, potato, beet, etc.*)

- *Per Application Rate:* 1.0-1.5 gal/acre of PAF, drip irrigation or foliar spray
- *Minimum Dilution:* 1:100 (1.00%), for spray applications
- *Application Timing:* Apply once at planting using half of the above rate and 2-3 additional applications at the full rate. Allow 2-4 weeks between applications.

#### Permanent Crops (*orchards, vineyards, nut trees, avocado, citrus, etc.*)

- *Per Application Rate:* 1.0-1.5 gal/acre of PAF, drip irrigation or foliar spray
- *Minimum Dilution:* 1:200 (0.50%), for spray applications
- *Application Timing:* Apply 3-5 times during the growing season (first application at bud swell). Allow 3-5 weeks between applications. Do not apply directly to flowers. During the flowering stage, PAF should only be applied to the soil.

#### Turfgrass (*warm and cool season grasses*)

- *Per Application Rate:* 1.5-2.0 gal/acre of PAF
- *Minimum Dilution:* 1:200 (0.50%)
- *Application Timing:* Apply 4-6 times during the growing season, starting with the first application when the grass begins growing in spring. 3-5 weeks between applications.

#### Flowers and Ornamental Plants

- *Per Application Rate:* 2-4 fl oz / 1,000 sq ft (0.67-1.33 gal/acre)
- *Minimum Dilution:* 1:100 (1.00%)
- *Application Timing:* Apply once at planting using half of the above rate. Follow up with two additional applications at the full rate. Allow 2-4 weeks between applications. Do not apply directly to flowers. During the flowering stage, PAF should only be applied to the soil.

#### Seed Treatment (*pre-soak*)

- *Application Rate:* 6 fl oz per hundredweight (CWT)
- *Minimum Dilution:* 1:400 (0.25%)
- *Timing:* Soak seeds in diluted PAF solution for 4-6 hours before planting.

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#### 4) INSTRUCTIONS FOR USE

Stir or shake well before use.

PAF liquid must be diluted prior to use (*refer to the previous page*). These are minimum dilution rates. Where higher water rates are required for good foliar coverage, do not exceed the maximum application rate.

The product can be applied through several different methods, including soil drenching, foliar spray, and injection into fertigation systems. The benefits are maximized when PAF is in the soil root zone, therefore appropriate soil applications are preferred.

Ensure suitable spray conditions (e.g. temperature, humidity, wind-speed), prior to foliar application.

PAF will stain clothing and certain surfaces. Spray away from buildings.

The product can be used together with pesticides/fungicides to improve efficacy.

Always conduct a jar test to ensure compatibility and spray test on a small area before wide-spread use.

For best results, use PAF in combination with Persist® Micronized Biochar. Add 1/2 cup of Micronized Biochar per gallon of PAF. Visit the Persist website for details.

([www.persistproducts.com/micronized-biochar](http://www.persistproducts.com/micronized-biochar))

#### 5) CHEMICAL COMPATIBILITY

Always conduct a jar test to ensure compatibility and spray test on a small area before wide-spread use.

*Incompatible materials:* chlorine; certain acids; ozone; liquid oxygen. (*This list is NOT exhaustive. Please contact VGrid for specific questions regarding compatibility*)

#### 6) STORAGE AND HANDLING

DO NOT CONSUME. Store in a sealed container and away from foodstuff. Do not allow pets or livestock access to this material. Always transport in sealed containers. Avoid use in confined and non-ventilated spaces. Adequate ventilation required.

*Personal Protective Equipment:* Overalls, gloves and covered footwear are recommended when loading, mixing or applying this product.

Keep containers tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Do not store in direct sunlight.

PAF may be disposed at an authorized waste management facility. Appropriate volumes may be applied onto a vegetated land area away from drainage zones or waterways.

Refer to the MSDS Sheet for complete requirements.

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#### 7) LABORATORY ANALYSIS

10% Pyroligneous Acid

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Acetic Acid: ~7.0%

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Other Organic Acids: ~1.0%

Including: Butyric, Succinic, Malic, Citric, Lactic, Pyruvic Acids

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Phenols: 1,300 mg/kg

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Bulk Density: 1.05 g/cm<sup>3</sup>

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pH: ~3.0

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\* Not a significant nutrient source.

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#### 8) PRODUCT AVAILABILITY

PAF is offered through a network of distribution partners in 275-gallon IBC totes, 55-gallon drums, and 2.5-gallon bottles.

Your Local Distributor

PAF is also available directly to consumers through [www.persistproducts.com](http://www.persistproducts.com) and from popular online retailers, including Amazon.

**Disclaimer:** This information contained herein is accurate to the best of V-Grid's knowledge. V-Grid Energy System makes no suggestion or guarantees that any information listed herein is the only ones that exist. V-Grid Energy Systems makes no warranty of any kind, expressed or implied, concerning the safe use of this material within the purchaser's process or combination with any other substances. Other materials can aggravate effects, and/or this material may aggravate or add to the effects of other materials. This material may be released from gas, liquid, or solid materials made directly or indirectly from it. The user has the sole responsibility to determine the suitability of the materials for any use and the manner of use contemplated. Users must meet all applicable safety and health standards.

