

FOR SALE

\$8,000,000

INCLUDES ALL PROCESSING & LAB EQUIPMENT

**FOOD GRADE LAB FACILITY WITH
PRODUCTION & STORAGE WAREHOUSE,
OFFICE AND RESIDENCE**

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kW YAKIMA
VALLEY
KELLERWILLIAMS.

**CUSHMAN &
WAKEFIELD**

PROPERTY FEATURES

±45,818 SF OVER 5 BUILDINGS ON ±40 ACRES



[CLICK HERE TO VIEW PROPERTY PHOTOS](#)

LABORATORY:

4,542 SF built in 2018 for mint extraction & processing, building features a reverse osmosis system and other systems to support a food grade lab. All existing stainless systems depicted in the images are not included in the sale, but are negotiable.

WAREHOUSE/PRODUCTION:

32,000 SF of grade level warehouse suitable for production or storage. 14' clear at eave.

OFFICE:

5,784 SF office with 9 privates and a conference room.

FARMHOUSE:

3,492 SF - 5 bed, 3 bath residence with finished



EXPLORING THIN FILM VACUUM DISTILLATION FOR NUTRACEUTICAL & FOOD OILS

CONCENTRATION OF TOCOPHEROLS (VITAMIN E)

Consumers are increasingly demanding natural or even organic sources for their foods, vitamins and minerals. As one of the common and key supplements, the tocopherol supply chain is seeing an increased focus on natural sources for extraction and purification.

In the purification process for vegetable oils made from sunflower, soybean, canola and other seed crops a by-product called vegetable oil deodorizer distillates (VODD) is generated. These distillates pre-concentrate the naturally occurring tocopherols and represent a cost-effective source of tocopherol for the vitamin, supplement and food industries.

CHALLENGE

The production of high-quality tocopherol from vegetable oil deodorizer distillates presents three major challenges:

- The deodorizer distillates contain various compounds that require a sophisticated separation process to obtain concentrated tocopherol of which wiped film distillation is a component.
- Tocopherol has a relatively high boiling point, and
- Tocopherol is susceptible to thermal breakdown without the assistance of vacuum distillation.

WIPED FILM VACUUM DISTILLATION

This VTA designed system operates in the temperature range and pressures necessary to successfully distill tocopherols. In continuous feed mode to separate the lighter distillates from the tocopherol it will permit long cycles of uptime. Between the local distillation expertise and the manufacturers experts who have commissioned similar systems for tocopherol extraction this system is a key component to a new venture.

ECONOMIC OPPORTUNITY

- 1) 15% tocopherol VODD shows recent spot prices of \$600/MT.
- 2) 95% tocopherol for cosmetics or food grade use sells in the range of \$15,000-\$50,000/MT

CONCENTRATION OF MEDIUM CHAIN TRIGLYCERIDES (MCT'S)

There is growing demand for MCTs to support a long list of health benefits, they are:

- Quickly converted into ketones for fast energy without carbohydrates.
- Support for weight management by increasing satiety, thermogenesis, and improved digestive health.
- Versatile in food and non-food uses because MCTs are stable at high temperatures, odorless, and easily emulsified, making them versatile for culinary, cosmetic and pharmaceutical applications.

Coconut and Palm oils are the most abundant natural sources of MCT raw materials for refining and redistillation.

CHALLENGE

Separating the MCTs from the complex mixture that make up palm or coconut oil which contain triglycerides, free fatty acids, tocopherols (vitamin E), sterols, and other compounds.

WIPED FILM VACUUM DISTILLATION

The compounds of interest in MCTs have medium molecular weights that can be separated from other components in palm or coconut oils using wiped film vacuum distillation due to differences in volatility and molecular weight. Depending on the composition of the raw material and equipment efficiency of the processing method, wiped film distillation can easily yields a triglyceride-rich fraction of 80-90% purity.

Standard processing often includes hydrolysis (breaking triglycerides into glycerol and fatty acids) or esterification (converting fatty acids to esters) as precursor techniques for separation. After which additional chemical reactions are required to reassemble the MCTs for commercialization. In contrast, wiped film distillation avoids chemical treatments and preserves the structure of MCTs.

The available system has the capability to operate at high vacuum (0.001-0.1 mbar) and moderate temperatures (150-250°C) to minimize thermal degradation. The triglycerides, being less volatile, remain in the residue (heavy fraction), while lighter components (tocopherols, free fatty acids) are collected in the distillate. Depending on the feedstock and operational parameters, multiple stages may be used to enhance separation, with each stage targeting specific volatility ranges.

THIN FILM VACUUM DISTILLATION IN CONTRACT MANUFACTURING ORGANIZATIONS

WIPED FILM VACUUM DISTILLATION FOR API PURIFICATION

Most APIs are produced with raw materials dissolved in a solvent to facilitate the reaction. After the reaction is complete the target product needs to be concentrated or isolated from the solvent, by-products, & unreacted raw materials through a series of steps often involving extraction, distillation, crystallization and filtration.

If distillation is part of the cleanup, a conventional batch approach can be time consuming, and because many APIs are thermally labile the distillation can result in product degradation and yield losses. These cost time, money, and lead to increased resource use which decreases the sustainability or profitability of the process.

One way to address these limitations is to optimize the distillation step and reduce solvent use by selecting the right distillation equipment. Continuous wiped film vacuum distillation is a great option to reduce the time the product spends at elevated temperatures. Reducing the residence time to a few minutes compared to several hours in a standard batch distillation decreases product degradation and increases quality, yield and efficiency.

WIPED FILM VACUUM DISTILLATION FOR SOLVENT RECOVERY POST-PROCESSING

A second opportunity for distillation to improve processing outcomes is to use it to reduce the impact of waste streams. Post-processing mixtures will often contain solvents, water, and by-products that can be separated either for reuse or to reduce the waste which needs disposal. Solvent or water can be distilled, recovered, and considered for process reuse while the remainder is sent for waste disposal.

Whether to save costs from the reduced volume of hazardous waste, or to save the cost of raw materials by reusing cleaned solvent, distillation can improve the sustainability & stewardship of manufacturing of API/KSM products.

PROCESSING FISH & MARINE OIL WITH THIN FILM VACUUM DISTILLATION

Marine oils are extracted from fish and certain marine algae for use in healthcare and nutraceutical markets. Crude marine oils need purification to remove impurities that are undesirable for consumers or interfere with downstream processes. As client specifications, industry standards, and regulations become increasingly strict, a greater degree of processing is required to meet these requirements.

CHALLENGE

Removal of Free Fatty Acids (FFA's) from marine oil is necessary to improve flavor, odor, extend stability/shelf-life and minimize undesirable byproducts. The historical industry approach has been alkali treatments to deacidify the FFA and convert it into soap, a process called saponification. This process loses desirable product through emulsification in the soap stock at a rate of 1:1.

HOW WIPED FILM VACUUM DISTILLATION IS YOUR SOLUTION?

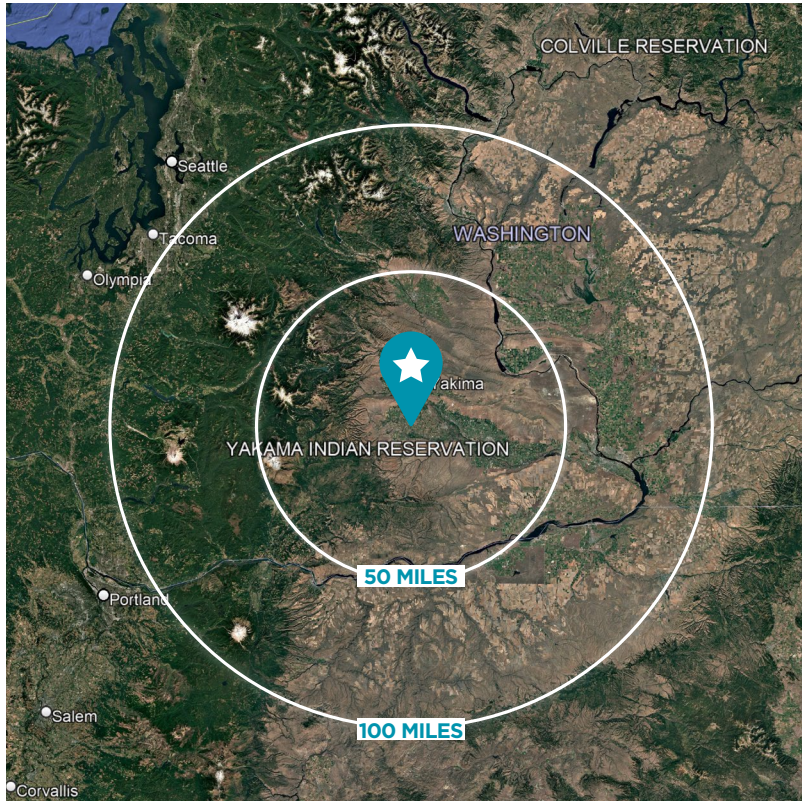
4 species of fish are commonly processed into fish oil on the west coast of the US. The typical FFA levels are 2-5% (Menhaden), 1-4% (Salmon), 3-7% (Anchovies), and 2-6% (Sardines). Distillation removes Free fatty acids in a fully continuous physical process in which no chemicals are added to the oil. Without the saponification process no costly secondary treatments are needed to remove the soap stock because none is generated. Concurrently with the removal of FFA in the distillation step many pesticides, persistent organic pollutants (POPs), and other undesirable impurities are removed.

ECONOMIC IMPACT

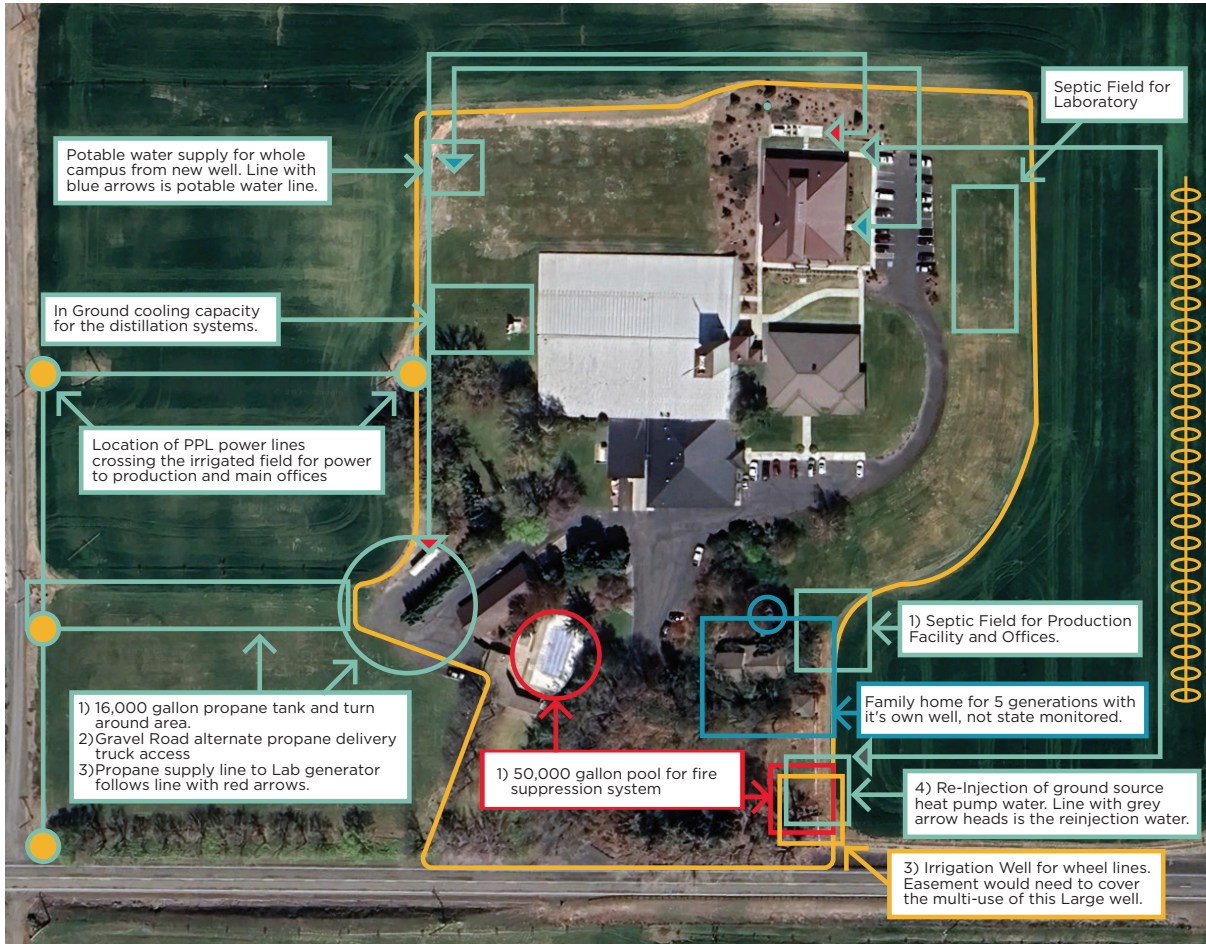
- 1) The available wiped film distillation system can process more than 2.5M kg/yr. of oil
- 2) Fewer processing steps saves time
- 3) Reduced loss of raw materials
 - Assuming an average FFA content of 3.75%, the loss of product fish oil in the saponification process will be ~ 4%.
- 4) Reduced management of hazardous chemicals input for the alkali treatment.
- 5) Reduced management of byproducts needing disposal

PROPERTY LOCATION

FOR SALE - \$8,000,000



164 MILES SEATTLE, WA	180 MILES PORTLAND, OR	290 MILES SPOKANE, WA
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