WASTE PROCESSING

WHAT ARE THE DESIRABLE FEEDSTOCKS FOR AN OMNI PROCESSOR?

Desirable feedstock for the Omni Processor include paper and plastic products, domestic house waste, bio-waste, animal waste and fecal waste. The OP cannot process metal, glass, batteries and several other toxic chemicals.

WHAT ARE THE MINIMUM AND MAXIMUM DAILY WASTE INPUTS FOR DIFFERENT KINDS OF WASTE?

The Omni Processor requires roughly 14 tons of dry waste per day as fuel. This can consist of solid waste including paper products, plastics, and domestic house waste, in addition to bio-waste, fecal waste and animal waste. The OP can process nearly 100 cubic meters of waste water with moisture content up to 100% provided that it is supplied with 14 tons of auxiliary dry fuel as listed above.

CAN YOUR MACHINE SERVE A POPULATION OF FEWER THAN THE ADVERTISED 100,000-200,000 PEOPLE?

The commercially available OP S200 is designed to consume the fecal waste from a population of roughly 100,000 people. However, as long as adequate dry fuel is supplied (approximately 14 tons/day) from a secondary source (such as garbage, or other solid waste), the OP can function in a smaller community, providing electricity, and drinking water while consuming fecal and solid waste. If there is not enough wet sludge to make drinking water, then ground water can be processed in the OP and turned into drinking water.

The economics will be an important factor in deciding if it makes sense to put an S200 OP in your smaller community. It is also possible to scale the technology down if necessary. Please provide us with more information about your needs so that we can help you determine what the best technology is for you.

HOW IS THE WASTE FED INTO THE MACHINE?

The Omni Processor has three infeed mechanism options. The first is a solid waste infeed mechanism that incorporates a grinder and conveyor for garbage and other solid waste streams. The second is by means of a pipe that pumps septic sludge from a tank. The third is an auger mechanism for inputting partially dewatered sludge and other similar “thickened sludge” waste streams.

CAN THE OP S200 PROCESS WASTEWATER THAT HAS A LOW SOLIDS CONTENT? WHAT ABOUT GREY WATER?

Yes, the OP can process waste with up to 100% moisture content. However, if the solids percentage is lower than 20%, it will be necessary to co-fire with solid waste or anther dry fuel source to provide the energy required to run the plant. Similarly, the S200 can process grey water if a secondary dry fuel source is utilized to supplement the energy requirements for the system. However, it can only process approximately 70 m^3 of grey water per day.

CAN THE OP WORK CONNECTED TO A WESTERN STYLE SEWAGE SYSTEM?

Yes, the OP is capable of integrating with a western style sewage system. However, it is impractical to use it as a standalone system to process all of the grey water and sewage in a sewage system without prior dewatering, due to the immense volume. A better solution is to co-locate an OP with a Waste Water Treatment Plant to consume the solids that are left over after treatment. This provides the treatment plant with huge savings because they do not have to pay to dispose of or further treat the solids, and they are supplied with electricity from the OP to run the rest of the plant.

WATER TREATMENT

HOW MUCH WATER IS PRODUCED AS A BYPRODUCT?

The commercially available S200 Omni Processor produces 70,000 liters of potable quality water per day as a byproduct. Additionally, if valuable at your location, the OP can pasteurize an additional 300 cubic meters of water per day using waste heat from the process. This additional water would be pathogen free, but would still contain vital nutrients for agricultural or other purposes, and could be pumped onto farmland using the electricity from the OP.

HOW DOES THE WATER TREATMENT SYSTEM WORK?

The water treatment system works by using a distillation process, followed by multi stage filtering in the vapor phase, condensing, multi stage filtration and aeration in the liquid phase, ozone injection, and light chlorination for storage.

Additionally, some minerals can be added back into the water to make it suitable for drinking.

ARE THERE HEAVY METALS OR PHARMACEUTICALS IN THE WATER; DOES THE SYSTEM FILTER THESE OUT?
No, there are not heavy metals or pharmaceuticals in the water. This is because a distillation process is used that allows only the vapor to come off of the sludge to go to water treatment leaving the potential heavy metal or pharmaceutical contaminants behind with the solids.

ELECTRICITY

WHAT IS THE MAXIMUM AMOUNT OF ELECTRICITY THAT CAN BE PRODUCED?
The commercially available S200 Omni Processor provides a net output of 250 kW of continuous electricity. We are now taking orders for this machine. However, we can easily scale the technology up or down depending on our customer's needs. We specialize in small scale industrial plants – 5 MWs or less.

IF I WOULD LIKE TO ACCESS MORE ELECTRICITY AND USE LESS WATER IS THIS POSSIBLE? WHAT ARE THE NUMBERS?
Yes. We specialize in small scale power plants – up to 5MWs. We can build plants that only generate electricity and do not make water if desired. Please let us know the size and options you are interested in so that we can generate a proposal for you.

Yes, the OP is designed to be grid independent.

SITE DETAILS/OPERATION

HOW DOES THE MACHINE START ITSELF?
The machine is started using propane or butane. The machine becomes self-sustaining within 30 min, and then the propane or butane feed will turn off automatically. We expect the OP to run 24 hours/day, 7days/week, and only get shut down occasionally for maintenance or if there is a fuel shortage. Therefore, the consumption of propane or butane should be minimal.

WHAT ADDITIONAL CIVIL WORKS WOULD BE NECESSARY TO SUPPORT THIS INSTALLATION?
A concrete slab foundation, water drain, and conduit will be required. Required details specific to your site preparation will be provided by Janicki Bioenergy.

DOES THE OP CREATE ANY AIR POLLUTION/EMISSIONS AT ALL? IF SO, HOW MUCH?
The exhaust of the Omni Processor meets all applicable EPA standards for emissions. The combination of a highly controlled burn in a fluidized sand bed and the downstream use of absorbents and a bag house are used to make this possible.

DOES THE MACHINE PRODUCE MUCH NOISE?
The Omni Processor does not produce much noise – it is quieter than a diesel truck.

DOES THE MACHINE PRODUCE UNPLEASANT ODORS?
The machine does not produce odors; however, some odors may be present from sludge and garbage as it is delivered to and stored at the site.

WHAT IS THE S200 PLANT FOOTPRINT? HOW MUCH LAND AREA IS REQUIRED AROUND THE OP?
The S200 model has a compact footprint. The core plant has a footprint of 11.5 x 20 meters. With options included, the overall plant has a footprint of nearly 11.5 x 29 meters. The water purification unit (if included) fits in a standard shipping container and will take up an additional area of 12 x 2.5 meters. We recommend an overall site of 1200 square meters to provide access for trucks and other traffic to access the OP.

COSTS/INVESTMENT

WHAT IS THE COST OF THE OMNI PROCESSOR?

The commercially available S200 Omni Processor costs roughly 4 million USD depending on options. However, we are developing a range of similar products that will cost between 300k-7M USD. These products will range not only in price but also in purpose and scale, from focusing primarily on solid waste processing and electricity production, to fecal sludge processing and water treatment to high volume water sterilization for agricultural or other purposes. Please provide us with more details about your needs so that we can determine which of our products will be the best fit for you, or how else we may be able to assist you.

WHAT IS THE COST OF THE OP WITHOUT THE PURIFIED WATER TREATMENT?

Without the water purification system, the OP will cost roughly $500,000 less.

WHAT IS THE SHIPPING/FOB COST?

There is no FOB cost. The shipping costs are included in the price of the machine.

WHAT ARE THE ESTIMATED O&M COSTS (DAILY/MONTHLY) FOR THE S200 UNIT?

The daily operational and maintenance costs are roughly 1,000 USD or 30,000 USD monthly. This will vary significantly depending on which options are utilized and what the local labor wages are in your area. We expect the annual operation and maintenance cost to be roughly 10% of the initial capital price of the machine and is included in the operational cost estimate above. This is consistent with maintenance costs for other machines and equipment in similar industries. The maintenance will be provided by Enexpol Energy/Janicki Bioenergy and will include spare parts, remote assistance and monitoring, software upgrades, and 24/7 support from Janicki Bioenergy engineers.

WHAT IS THE ROI?

The return on investment will vary greatly depending on the market conditions around your site. The technology is designed to pay for itself within 2-4 years with some combination of revenue from tipping fees for fecal and solid waste, electricity, heat and water production.

SCHEDULE/TIMELINE

WHAT IS YOUR S200 PRODUCTION TIMELINE?

We are in the process of commercializing the Omni Processor technology. We are now taking orders for the S200 model delivery in 2016 – 2017, and are scaling up our production capabilities. We estimate that from signing contract, production/delivery/start-up will take about 8 months for the S200.

WHO INSTALLS/ASSEMBLES THE MACHINE, AND HOW LONG DOES THIS TAKE?

Janicki Bioenergy engineers and technicians will be responsible for the assembly and commissioning of the Omni Processor, and will work with local contractors, or customer employees to accomplish this. This process should take between 2-4 weeks. The customer will be responsible for preparing the site for the arrival of the machine. This consists of minor civil work including pouring a concrete slab, incorporating a drain, and conduit for electrical purposes. The required details specific to your site preparation will be provided by Janicki.

WHAT IS THE PREDICTED LIFESPAN OF THE MACHINE?

The Omni Processor is expected to last about 20 years, before general refurbishing. Janicki Bioenergy will be supplying software upgrades and spare parts continuously throughout this period of time.

TECHNICAL SUPPORT/SERVICES

WILL JANICKI BIOENERGY/ENEXPOL ENERGY BE PROVIDING OPERRATIONS & MAINTENANCE SERVICES?

Janicki BioenergyEnexpol Energy will sell the Omni Processor with a lifetime technical support and maintenance contract which will cover a portion of these costs. This will consist of 24hr remote assistance and support for the operation, spare parts, and software upgrades as necessary. The OP is fully equipped with cameras and live data feed that allow our engineers to monitor and troubleshoot the OP remotely.

WHAT DOES THE MAINTENANCE CONTRACT INCLUDE AND NOT INCLUDE?

Everything related to the Omni Processor technology including all required software and hardware updates/replacements are included in the maintenance contract. The onsite labor for daily operation and site improvements are not included.

DOES THE MACHINE COME WITH A WARRANTY? WHAT IS COVERED IN THE WARRANTY?

Yes, Janicki Bioenergy and Enexpol Energy provides a full guarantee for performance of the technology. A technical service package is also provided for each unit which will cover parts and technical support for the life of the unit.

GENERAL QUESTIONS

HOW MANY JOBS CAN ONE OP GENERATE?

This will depend on how the OP is used. While only a couple of operators will be required to run the plant, many jobs will be created in the collecting and sorting of the inputs as well as the selling and distributing of the outputs. Additionally, if the OP is used in conjunction with agriculture, it has the opportunity to create hundreds of jobs and generate a large amount of economic activity.

WHAT INTERNATIONAL STANDARDS DOES THE S200 PLANT COMPLY WITH?

The water output meets WHO standards for potable drinking water. The plant meets US EPA and EU standards for emissions, and all of the engineering on the plant is fully compliant with ASME standards.

IS THE OP PATENTED?

Yes, the OP is patented.