Questionnaire form (based of specification and characteristics of TVDU models)

for preparation of the technical specification, design and manufacture of the Ecodest complex for electron-plasma, chemical decontamination, destruction and disposal of industrial, medical, biological waste and MSW (with the installation of a thermal vortex destructor-utilizer).TVDU-1000 or TVDU-5000)

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| **№**  **n/** | **Name of conditions** | **Unit of measurement** | **Confirmation of conditions** |
| 1 | Customer | - | Name company "\_\_\_\_\_\_\_\_\_\_\_\_\_\_" |
| 2 | Place of project implementation | implementation- | City\_\_\_\_\_\_\_\_\_\_, str.\_\_\_\_\_\_\_\_\_\_\_\_\_, e-mail address:\_\_\_\_\_\_\_\_\_\_ phone number:\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| 3 | Volume of waste disposal / of waste disposal / neutralization | tons/ year  tons / hour | not less than \_\_\_ \_  not less than \_ \_ \_ \_ |
| 4 | Types of generated waste by morphology  (branch of waste production and generation  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_) | tons / day | wood chips \_ \_ \_ \_ \_  sawdust \_ \_ \_ \_ \_  wood, chipboard, fiberboard \_ \_ \_ \_ \_  paper, cardboard \_\_\_\_\_  polyethylene \_ \_ \_ \_ \_  polymers \_ \_ \_ \_  ZHBO \_ \_ \_ \_ \_  MSW \_ \_ \_ \_ \_  chemical / phenolic \_\_\_\_\_  other\_ \_ \_ \_ |
| 5 | Performance of TVDU "Ecodest" | tons / hour | TVDU-1000-1 ton per hour (yes/no)  TVDU-5000 - 5 tons per hour (yes/ no) |
| 6 | Electricity consumption (power) for waste disposal / waste neutralization | kW / h | TVDU-1000 = 85 / TVDU-5000 = 180  (consumption may vary depending on the aggregate binding and TVDU capacity) |
| 7 | Heat output capacity of thermal energy | Gcal / year  Gcal/hour | TVDU-1000 no less than 20000 / TVDU-5000 = 87600  TVDU-1000 no less than 2 / TVDU-5000 = 10 |
| 8 | Steam production capacity / output | tons / hour | TVDU-1000 from 3 / TVDU-5000 from 13 |
| 9 | Type Equipment type | - | Packaging–and container, mobile, |
| 10 | Volume of neutralized, recycled waste | tons/ hour | from 1 to 5  (up to 6 depending on the morphology and TVDU model) |
| 11 | Thermal energy capacity | Gcal / hour | TVDU-1000 no less than 2 Gcal per hour (450о° C, 26 bar)  TVDU-5000 no less than 10 Gcal per hour (450о° C, 26 bar) |
| 12 | Volume of heat generated | MW / h | TVDU-1000 no less than 2  TVDU-5000 no less than 10 |
| 13 | Operating mode Operating mode | - Daily - | Toyear - round |
| 14 | Number of employees | pers.. / shift | 2 |
| 15 | Working area for production | mm2 | up to 1000 (from 100)  Free area \_\_\_\_\_ \_ |
| 16 | Industrial water supply | - | On-  Site (In addition 200 liters /hour may be required periodically to clean the scrubber when disposing of dioxin- and furan-containing petrochemical waste containing chlorine and sulfur, as well as tires) |
| 17 | Technical water capacity  (10% of sludge water in the circulating cycle) | tons/hour | TVDU-1000 not less than 2 (Yes/ No )  TVDU-5000 not less than 13 (Yes/ No )  (Optional vaporizer) |
| 18 | Household consumption | water supplym3/ day | is required for personnel from 0.2 to 0.5 (Yes/ No) |
|  | Use of generated heat | - | Heating \_ \_ \_ \_ \_ Gcal  Hot water supply \_\_\_ \_ \_ m3  Condensation for cold water supply \_\_\_ \_ \_ m3  Electricity \_ \_ \_ \_ \_ kW / h |
| 19 | Managing / Plant management | - | Automated |
| 20 | Waste site, approx.. | m3 |  |
| 21 | Site for Temporary storage of accumulation secondary waste/ by -products | m2 | to 50 |
| 22 | Production shop for TVDU | - | Not required |
| 23 | Installation of a tank for draining and storing purified (industrial water) | m3 | from 10 to 60 |
| 24 | Installation on the shredder installation and if necessary a lot of hopper for waste | management- | TIS selected |
| 25 | Conditions of placement in areas with special regimes | - | Placement of the installation in a water /residential area (at least 1000 m) |
| 26 | Name of industrial waste for disposal / neutralization with the TVDU installation | - | Type of waste  (Defined in the received Technical Specification and PI, expecting to receive a new GEE withinи 3-4 months) |
| 27 | Name/ classification of medical waste | - | Class CA, B, C, D  (MI BO class D waste according to the laws On production and disposal of waste, new GEE for TVDU can be obtained, including class D) |
| 28 | Name of farm waste | - | Class D (Class A,B,C,D) |
| 29 | Availability of equipment tests | - | Government Environmental Expertise (GEE) for "Technology for neutralization/ desposal of industrial waste with"TVDU Ecodest". |
| 30 | Availability of recommendations/ notes | - | No sanitary and epidemiological recommendations and/or notes issued during technical supervision |
| 31 | Availability of certificates | - | Certificate of Conformity  (Each unit is provided with a manufacturer's certificate) |
| 32 | Availability o ftechnical documentation | documents- | Operations manual, installation passport, repair manual, passports for all components and assemblies provided. |
| 33 | Availability of environmental documents | - | Materials and results of testing (in technical specifications)  Materials of the EIA-environmental impact assessment (in SEE and PI) |
| 34 | Installation operation diagram | - | Оn-line-Flow chart  (Provided) |
| 35 | Additional services | - | pre -commissioning works are carried out (included in the price of the TVDU) |
| 36 | Humidity of waste to be disposed | the TVU% | up to 95 |
| 37 | Electricity consumption for the feeding device | kW/ h | 6  (for the MSW belt conveyor) |
| 38 | Volume of secondary waste generation and by-products | tons/h  (up to 10 % of the Ioaded waste volume | from 0.25  (from 0.2 to 5% of the waste volume, depending on the morphology)  (Supply of ash residue/coal containers/ bags at the expense of the operator are part of the contract for TVDU) |
| 39 | Installation weight (20” and 40" ft modules) | ton | TVDU-1000 to 26  TVDU-5000 to 140 |
| 40 | Possibility of forming  by-products | - | Steam, bulk materials  (only water vapor and fine ash are formed in the form of light atomic ash from 0.2 to 5% of the waste volume) |
| 41 | Preparation of loading | - | Adopted for loading unopened, sealed packages of 1000x500x500 mm in size |
| 42 | Prevention of releaseв pollutants into the atmospheric air | - | gas cleaning device or scrubber included in the installation |
| 43 | Preheating the furnace cavity | - | Adopted for liquid and solid fuel  (300 l / year of ignition liquid) |
| 44 | Cooling of the combined-cycle gas mixture | - | Heat exchanger for the treatment o honed waste water and oil-containing waters as part of the installation.  (Provided as an additional option) |
| 45 | Electricity generation | kW / h | TVDU-1000 from 0.3 MW  TVDU-5000 from 2 MW  (It is provided as an additional option to use steam-electric generator of the Steam-Screw Machine type-PVM or PTGU) |
| 46 | Use of by-products | - | * steam generated from the plant for the needs of the owner; * pyrolysis gases for the needsof the owner; (Pyrolysis liquid is not formed. pyrolysis gases are processed in the reactor /heat chamber) * purified water for the needs of the owner; (Provided as an additional option) * Consider removal of the ash residue and sending it in bulk for processing to the TVDU Supplier (The ash residue is sent to the Supplier at the expense of the operator) |
| 47 | Pros of the TVDU installation | - | Electro-plasma chemical direct processing of the waste mass at no additional costs (MSW, MI BO waste utilization, etc. at no additional cost). |

**Manufacturer**