**QUESTIONNAIRE**

for the implementation of a

Waste To Energy (WTE) – incineration plant

in ………… / …………..

for

………………………………….……

………………………………………..

………………………………………..

………………………………………..

………………………………………..,

Project P-…-…

# General information

## Information about your company:

Company:

Adress:

Person in charge:

Telephone: Fax:

E-mail:

Owners of the company:

## Scope of services

Short description of the branch/ scope of supply and services:

## Location of the plant

Place:

Set-up area [m2]:

Groundwater level [m]:

Elevation above sea level [m]:

Map(s) / layout sketch enclosed: yes O no O

## Climatic conditions

Temperature [°C]: min: max: average:

Relative humidity [%]: min: max: average:

Rainfall [mm]: annually

Wind [km/h]: max

Earthquake: factor acc. to:

## Available energy sources and media at plant site

Electrical power: [kV] [Hz]

Quality of oil: [MJ/kg]

Natural gas: [m3/h] [bar] [MJ/kg]

Steam: [t/h] [bar]

Drinking water: [m3/h] [bar]

Cooling water: [m3/h] [bar] [°C]

Analysis enclosed: yes O no O

Allowable emission limits enclosed: yes O no O

# Characteristics of fuels

## Quantities

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Type of fuel** | | **[tpy]** | **Lower calorific value [MJ/kg]** | | |
| **min.** | **max.** | **average** |
| **Type of residues** |  |  |  |  |  |
|
|  |  |  |  |  |
|
|  |  |  |  |  |
|
|  |  |  |  |  |
|
|  |  |  |  |  |
|
| **Waste material** |  |  |  |  |  |
|
|  |  |  |  |  |
|
|  |  |  |  |  |
|

## Physical properties

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Type of fuel** | |  |  |  |  |
|
| **Particle size [mm]** | |  |  |  |  |
|
| **Density [kg/m3]** | |  |  |  |  |
|
| **Bulk density [kg/m3]** | |  |  |  |  |
|
| **Thermal ash behavior [°C]** | beginning of sintering |  |  |  |  |
|
| beginning of softening |  |  |  |  |
|
| hemispheric point |  |  |  |  |
|
| flowing point |  |  |  |  |
|
| **Content of inert material [%] (Stones, metallic particles)** | |  |  |  |  |
|

## Elementary analysis

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Type of fuel** | | | | | | | | | | | |
|  | wt. % | | | wt. % | | | wt. % | | | wt. % | | |
| **Element** | min. | av. | max. | min. | av. | max. | min. | av. | max. | min. | av. | max. |
| C |  |  |  |  |  |  |  |  |  |  |  |  |
| H |  |  |  |  |  |  |  |  |  |  |  |  |
| O |  |  |  |  |  |  |  |  |  |  |  |  |
| N |  |  |  |  |  |  |  |  |  |  |  |  |
| S |  |  |  |  |  |  |  |  |  |  |  |  |
| Cl |  |  |  |  |  |  |  |  |  |  |  |  |
| H2O |  |  |  |  |  |  |  |  |  |  |  |  |
| Ash |  |  |  |  |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Type of fuel** | | | | | | | | | | | |
|  | wt. % | | | wt. % | | | wt. % | | | wt. % | | |
| **Element** | min. | av. | max. | min. | av. | max. | min. | av. | max. | min. | av. | max. |
| Hg |  |  |  |  |  |  |  |  |  |  |  |  |
| Ca |  |  |  |  |  |  |  |  |  |  |  |  |
| Al |  |  |  |  |  |  |  |  |  |  |  |  |
| Si |  |  |  |  |  |  |  |  |  |  |  |  |
| P |  |  |  |  |  |  |  |  |  |  |  |  |
| Fa |  |  |  |  |  |  |  |  |  |  |  |  |
| As |  |  |  |  |  |  |  |  |  |  |  |  |
| Cr |  |  |  |  |  |  |  |  |  |  |  |  |
| Ti |  |  |  |  |  |  |  |  |  |  |  |  |
| Zn |  |  |  |  |  |  |  |  |  |  |  |  |
| Ba |  |  |  |  |  |  |  |  |  |  |  |  |
| Ni |  |  |  |  |  |  |  |  |  |  |  |  |
| Pb |  |  |  |  |  |  |  |  |  |  |  |  |
| Cd |  |  |  |  |  |  |  |  |  |  |  |  |
| Cn |  |  |  |  |  |  |  |  |  |  |  |  |
| Hg |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |

## Ash analysis

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Type of fuel** | | | | | | | | | | | |
|  | wt. % | | | wt. % | | | wt. % | | | wt. % | | |
| **Element** | min. | av. | max. | min. | av. | max. | min. | av. | max. | min. | av. | max. |
| C tot |  |  |  |  |  |  |  |  |  |  |  |  |
| CO2 |  |  |  |  |  |  |  |  |  |  |  |  |
| SO3 |  |  |  |  |  |  |  |  |  |  |  |  |
| Cl |  |  |  |  |  |  |  |  |  |  |  |  |
| P2O5 |  |  |  |  |  |  |  |  |  |  |  |  |
| SiO2 |  |  |  |  |  |  |  |  |  |  |  |  |
| Fe2O3 |  |  |  |  |  |  |  |  |  |  |  |  |
| Al2O3 |  |  |  |  |  |  |  |  |  |  |  |  |
| CaO |  |  |  |  |  |  |  |  |  |  |  |  |
| MgO |  |  |  |  |  |  |  |  |  |  |  |  |
| Na2O |  |  |  |  |  |  |  |  |  |  |  |  |
| K2O |  |  |  |  |  |  |  |  |  |  |  |  |
| TiO2 |  |  |  |  |  |  |  |  |  |  |  |  |
| Pb |  |  |  |  |  |  |  |  |  |  |  |  |
| Cd |  |  |  |  |  |  |  |  |  |  |  |  |
| Cu |  |  |  |  |  |  |  |  |  |  |  |  |
| Hg |  |  |  |  |  |  |  |  |  |  |  |  |
| Mn |  |  |  |  |  |  |  |  |  |  |  |  |
| Cr |  |  |  |  |  |  |  |  |  |  |  |  |

# Emission standards

Emission standards required by law or local regulation

Values in mg/Nm3 dry base, related to 11% O2

|  |  |  |
| --- | --- | --- |
| SOx (SO2) | [mg/Nm³] |  |
| HCl | [mg/Nm³] |  |
| CO | [mg/Nm³] |  |
| NOx (NO2) | [mg/Nm³] |  |
| Corg | [mg/Nm³] |  |

Heavy metals



Rest C in ash: [%]

# Energy utilization

Energy utilization: yes O no O

Tutbine Generator: yes O no O

District Heating: yes O no O

Other: yes O no O