

# DESIGN DATA ARE REQUIRED FOR EXPRESS ESTIMATIONS FOR DIFFERENT TYPES OF WASTE

**Waste processing into synthesis gas by plasma gasification technology with subsequent production of electricity, heat or methanol, or fuel by plasma pyrolysis technology (including upgrading into a hybrid plant)**

- A. Country, region and climatic parameters.
- B. Required productivity per day and overall productivity per year in tones.
- C. Feedstock parameters:
  1. Waste type (solid, liquid, gaseous, dispersed) with an indication of daily or annual volume.
  2. Granulometric composition (particle size of feedstock).
  3. Waste morphological composition (main components).
  4. Waste chemical composition (wt.%):

W Humidity	A ash (inorganic)	C carbon	H hydrogen	O oxygen	N nitrogen	S sulfur	Cl chlorine	Other	TOTAL
									100 %

5. Waste specific heat of combustion (lowest), MJ / kg.

## Heavy hydrocarbon fractions processing into light oil products using the method of plasma chemical hydrocracking

Item	UM	Value / Formula
Average molecular weight		
Boiling temperature	°C	
Heat capacity	kJ/(kg K)	C(t) =
Specific heat of evaporation (vaporization)	kJ/kg	
Specific dissociation energy	kJ/kg	
Cracking temperature	°C	

### Waste chemical composition (wt.%):

W Humidity	A ash (inorganic)	C carbon	H hydrogen	O oxygen	N nitrogen	S sulfur	Cl chlorine	Other	TOTAL
									100 %

Or gross formula: C<sub>x</sub>H<sub>y</sub>O<sub>z</sub>N<sub>k</sub>

## Afterburning of waste gases using the method of plasma chemical processing

1. Gas volume
2. Gas chemical composition
3. Gas temperature
4. Maximum gas temperature in the existing process