TECHNICAL DATA SPECIFICATION FOR TECHNOLOGY CHALLENGE 8: TECHNOLOGY SOLUTION FOR THERMAL OXIDIZER FLUE GAS SOx EMISSION REDUCTION

1. The scope boundary of post-treatment for thermal oxidizer flue gas is shown in Figure 1 below: -

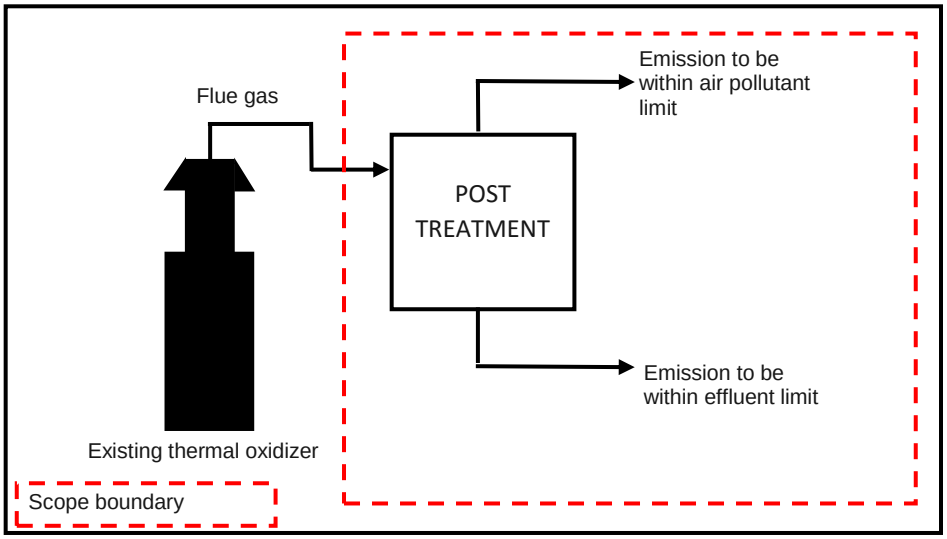

Figure 1: Scope boundary of post treatment for thermal oxidizer

2. The thermal oxidizer flue gas is tabulated as below:

Parameter	Unit	Value
Flue gas flowrate	t/day	2000 to 4000
Stack temperature	deg C	850
Stack pressure	Bara	Atm
Component	Unit	
CO_2	mol%	28
O_2	mol%	10
H_2O	mol%	12
N_2	mol%	50
SO_2	mg/m3	1500
NOx	mg/m3	14
CO	mg/m3	3

Table 1: Thermal Oxidizer flue gas parameter

3. The proposed post-treatment technology shall meet the following environmental limit:

a. Air Pollutant Emission Limit

The air pollutant emission from the proposed post-treatment technology shall not exceed the concentration limits tabulated below. The O_2 reference content is 11% except for SOx which will use 3% O_2 as reference. Values are calculated in terms of mass of pollutant per volume of the waste gases, at standard conditions for temperature and pressure for dry gas (volume at 273 K, 101.3 kPa). The proposed post-treatment unit shall meet the above performance requirement for all the emission limits.

Pollutant	Limit Value	Monitoring
Total PM	100 mg/m^3	Continuous
NMVOC as total organic carbon	10 mg/m^3	Continuous
Hydrogen chloride (HCl)	40 mg/m^3	Continuous
Hydrogen fluoride (HF)	1 mg/m^3	Continuous
Sum of SO_2 and SO_3 expressed as SO_2	600 mg/m^3 (3% O_2)	Continuous
Sum of NO and NO_2 expressed as NO_2	200 mg/m^3	Continuous
Carbon monoxide (CO)	50 mg/m^3	Continuous

Table 2: Air Pollutant Emission Limit

b. Discharge of Effluent Limit

Discharge of effluent from the proposed post-treatment technology shall not exceed the concentration limit tabulated below:

Parameter	Unit	Value
Temperature	°C	40
pH	-	5.5-9
COD	mg/L	<200
BOD	mg/L	<50
Suspended Solids	mg/L	<100
Oil and Grease	mg/L	<10
Color	ADMI	<200

Table 3: Effluent Limit