Tialoc

Tialoc Group

Environmental Technology – High temperature

Tialoc Belgium - High Temperature Environmental Technology EPC company

Environmental Technology

Tialoc Belgium is an EPC company focusing on

Incineration and **flue gas treatment solutions**
of solid, liquid and gaseous
hazardous waste streams

Gaseous

Liquid

Solid

Selected process technologies

Technology	Adsorption, absorption, oxidation	Oxidation, chemical and biological treatment	Oxidation
Solutions provided	• Thermal oxidizers • Catalytic and non-catalytic DeNOx • Flares • Scrubber systems • Odour control	• Chemical & biological treatment • Sludge processing & dewatering • Thermal oxidizers • Catalytic oxidisers	• Hazardous waste treatment • Rotary kilns • Waste handling & storage • Steam generation and energy recovery

EPC Environmental Technology – Tialoc Belgium

Engineering & Design projects :

- Emission reduction feasibility engineering studies and – projects
- Energy optimalisation feasibility engineering studies and - projects
- Feasibility studies
- Feed engineering projects, Basic engineering projects & detailed engineering projects

EPC-EPCm projects :

- Flaring systems
- Burners based on our own patented technology (multi-fuel burners, ultra-low Nox burners etc.)
- Incinerator packages
- Thermal oxidiser packages
- Flue gas and exhaust gas treatment systems
- SRU packages
- W2E factories & - technologies

Our Clients in Europe

Tialoc's client portfolio includes multinational companies across all major industries

Tialoc Belgium Technology Development

2000	Low Energy deNOx system
2003	TÜV approval for Dynamic Flame Arrestor
2004	Venturi Flame Holder burner for flares and combustors
2007	Combustor for tank storage and terminals
2008	High Intensity Incinerator
2009	Reduction-oxidation system for waste gases to improve energy efficiency
2011	Feed-forward/feed-backward control system for fuel efficient combustion
2012	Gasification-oxdation energy system for waste gases, liquids and slurries
2013	Gasification-oxdation energy system for solid waste and biomass
2013	Tulip Vortex Burner development.
2014	Vapour Recovery Units (activated carbon based) for chemical storage facilities
2015	Rotary Kiln Redu-Reox technology for mid-sized Energy-from-Waste plants
2015	High Dust Burner
2016	Ultra low NOx SRU burners
2016	Vapour Recovery Units (VRU) using zeolite and silica gel media
2017	Concept for cargo ship degassing
2017	Photocatalytic VOC oxidation
2017	Second generation Tulip Vortex Venturi Burner
2019-20	3D printed burners

At the forefront of innovation

- First dynamic flame arrestor
- First liquid waste ReduReox Plant
- First solid waste ReduReox Plant
- First Tulip burner application
- First VIP control for vapor combustors

Technology Driven in close collaboration with our clients

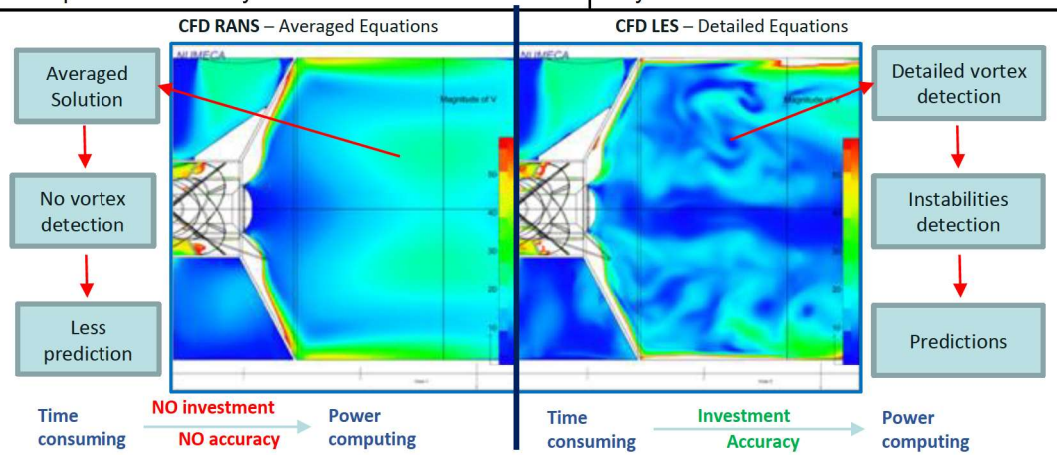
- Vopak : dynamic flame arrestor
- AkzoNobel : liquid waste ReduReox
- Shell : Tulip burner with satellites
- Vopak : VIP Control for energy Efficient vapor treatment

Tialoc Belgium - Performance through R&D

Overview of Patents and Intellectual Property: Environmental Technology (Europe)

Authorized/Active

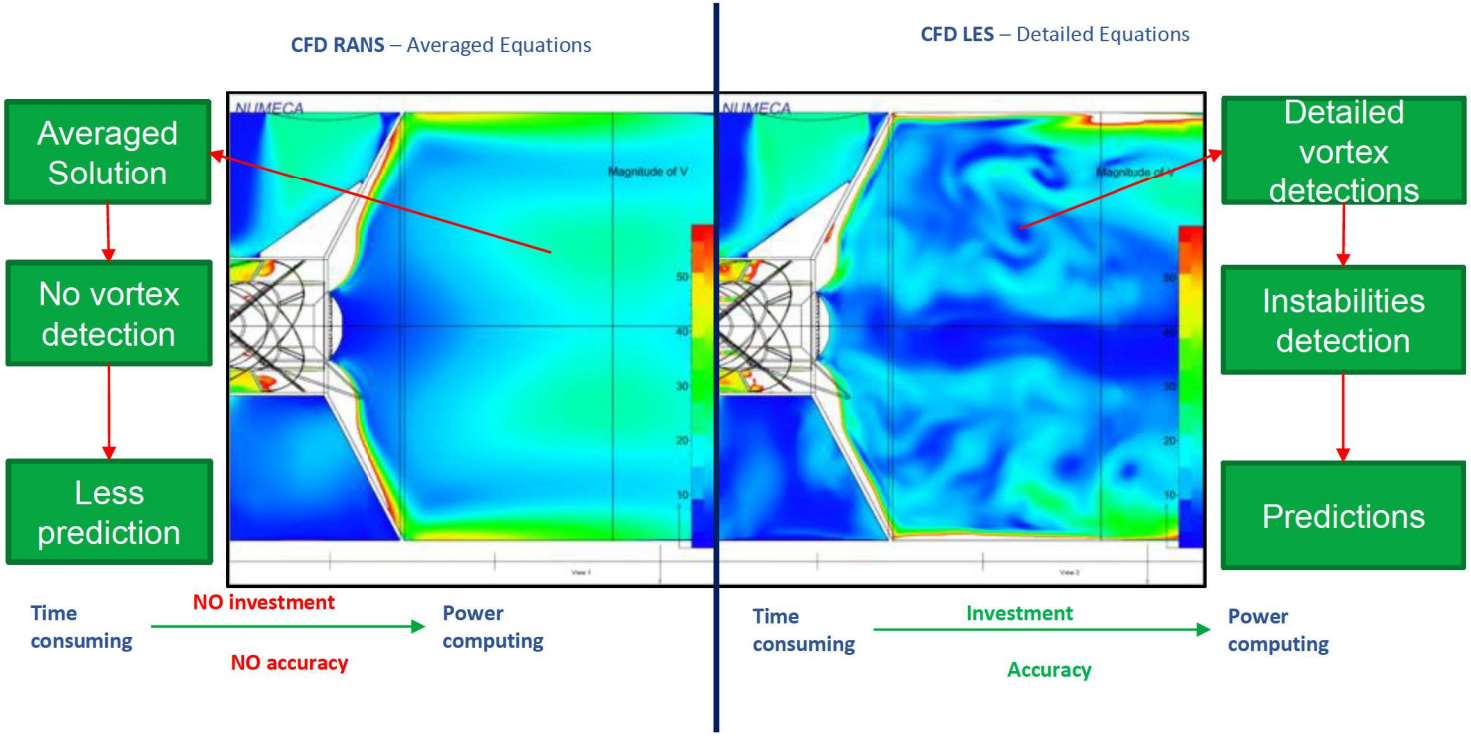
No.	Patent Name	Authorization Date
1	ReduPeox process	June 2019
2	LedeNOx process	June 2019
3	Split boiler	June 2019
4	Mixed zeolite bed + Regeneration strategy for VRU	July 2019
5	VIP Control	July 2019
6	VRU-VCU	July 2019
7	2-stage SRU	July 2019
8	TV2 burner	July 2019
9	VHF burner	July 2019
10	HI combustion process	July 2019
11	Vapour absorption and recovery unit	July 2019



Tialoc & Hydrogen ???

Research & Development

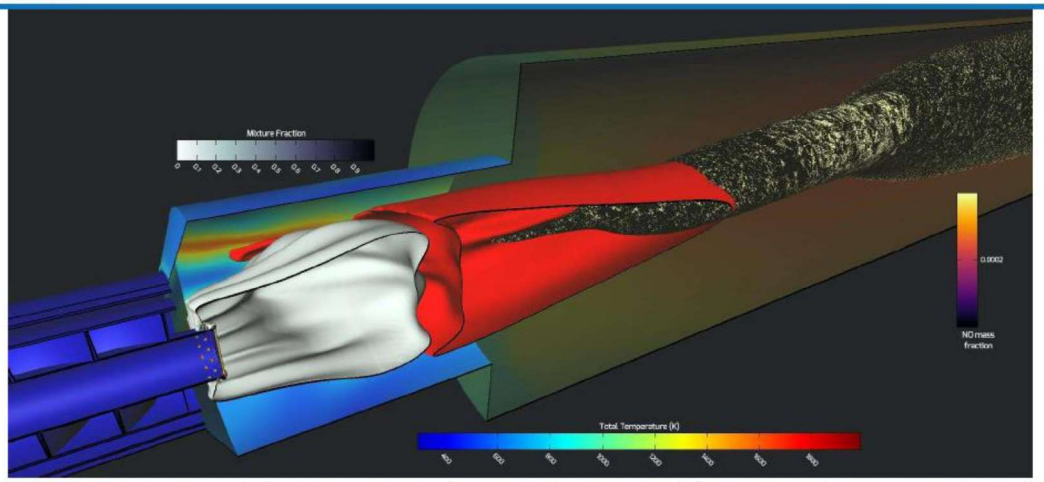
Computational Fluid Dynamics, Chemical Kinetics, Chemistry Mechanism for Hydrogen Combustion Processes and Burners



Tialoc Belgium patent for the new multi-fuel burner development up to 6 MW

Hydrogen versus NOx

Non-disclosure: 100% hydrogen burner – CFD simulation
BENELux



White = the fuel volume injection just before igniting. Red = the stoichiometric point of the mixing, and it is contoured with the temperature Black & Yellow = the thermal NOx source which starts from inside of the root flame and continues to the end of the chamber. For that, the yellow-purples scaling is foreseen in the right side of the figure. How starts the combustion, ignite and also flame definition and the tracking of the NOx source.

Tialoc Belgium - Hydrogen Combustion Technology

Custom designed

Incineration and **flue gas treatment solutions**
of
mixed hydrogen & **pure hydrogen**
streams

Tialoc Belgium – Waterstof Industry Cluster

Tialoc Pitch :
Tialoc is an engineering company active in the combustion of gaseous, liquids or solid waste streams.
Based on our Computational Fluid Dynamics (CFD) simulations, Tialoc can design tailer made solutions for hydrogen & ammonia combustion.
Tialoc has its own patented low NOx burner technology with capacities from 1MW to 60 MW.

shaping awareness that **Tialoc can contribute to**

Hydrogen & Ammonia Combustion / burner technology

Hydrogen & Ammonia flaring projects

Interesting projects for Tialoc are

Hydrogen process factories & storage tank facilities

Ammonia process factories & storage tank facilities

Hydrogen combustion projects

Tialoc Belgium NV

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