EXEL Air Tech Sp. z o.o.

November, 2025

EXEL – COMPANY

EXEL Air Tech Sp. z o.o. (Ltd.) (“EAT”)
since March 2021

Eco-tech production company

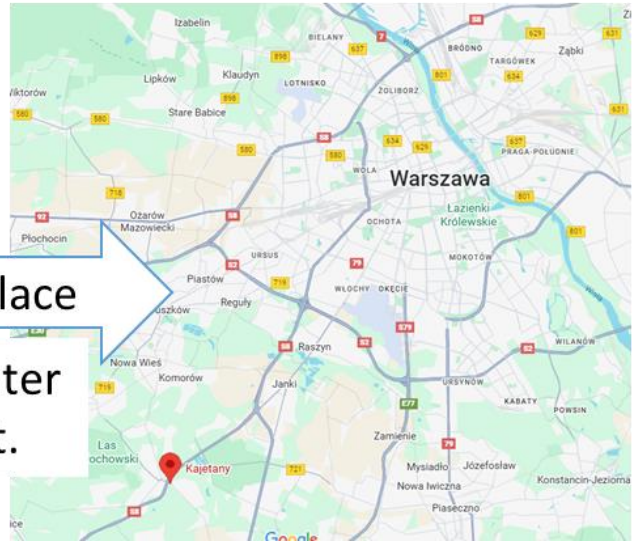
The concept of EAT is commercialization of inventions:

- **Air purification,**
- **Decarbonization (CO2 capture tech),**
- **Green energy**

Four private persons working for Kohlhauer Group (Reinhard Kohlhauer, Ruslan Wolff, Maciej Zakrzewski, Adam Mielczarek) became shareholders of EAT and two of them (Ruslan Wolff and Adam Mielczarek) were authors of the first patent application.

Based in Kajetany at ALFA BOND KOHLHAUER’s place

The company is located 40 minutes from the center of Warsaw and 15 minutes from Chopin’s Airport.

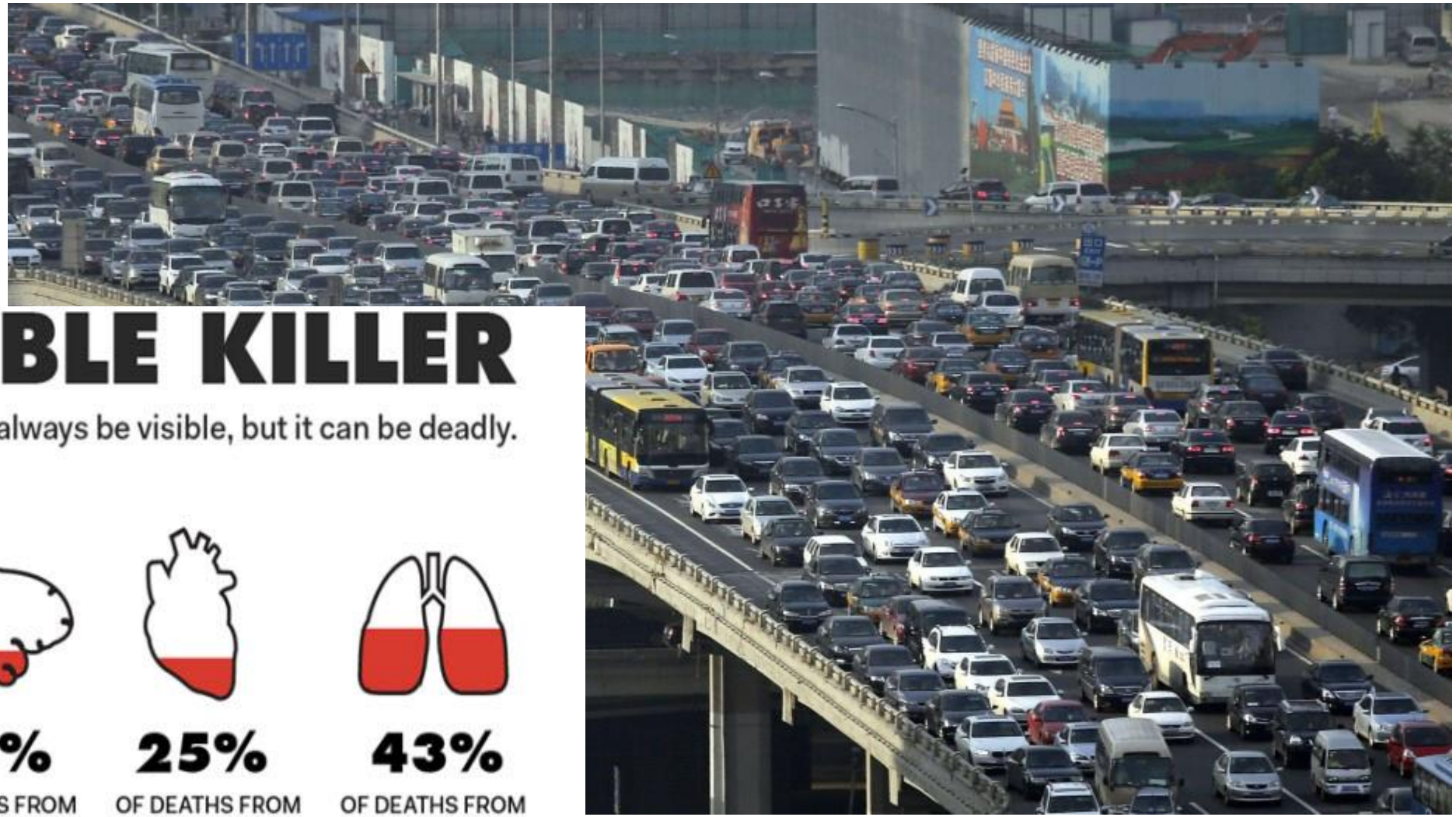


EXEL – BACKGROUND

4 000 000 PEOPLE DIE YEARLY!!!

in Asia due to dirty air!

EXEL – BACKGROUND



EXEL – BACKGROUND

UE

WHO

Pollutant	Averaging period	EU Air Quality Directives: Objective	EU Air Quality Directives: Concentration	EU Air Quality Directives: Comments	WHO Air Quality Guidelines: Concentration: Interim targets 1.	2.	3.	4.	WHO Air Quality Guidelines: Concentration: AQG level	WHO Air Quality Guidelines: Comments
PM2.5	24-hour	Target value			75	50	37,5	25	15 µg/m³	99th percentile (i.e. 3–4 exc. Days
$PM_{2.5}$	Annual	Limit value	25 µg/m³		35	25	15	10	5 µg/m³	
$PM_{2.5}$	Annual	Indicative limit value	20 µg/m³							
PM10	24-hour	Limit value	50 µg/m³	Not to be exceeded on more than 35 days/year	150	100	75	50	45 µg/m³	99th percentile (i.e. 3–4 exc. Days
PM_{10}	Annual	Limit value	40 µg/m³		70	50	30	20	15 µg/m³	
O_3	Max. daily 8-hour mean	Target value	120 µg/m³	Not to be exceeded on more than 25 days/year (averaged over 3 years)						
O_3	Max. daily 8-hour mean	Long-term objective	120 µg/m3							
O_3	8-hour	Target value			160	120	–	–	100 µg/m³	99th percentile (i.e. 3–4 exc. Days/year)
O_3	Peak season [3]	Target value			100	70	–	–	60 µg/m³	
NO2	Hourly	Limit value	200 µg/m³	Not to be exceeded on more than 18 hours/year					200 µg/m³	
NO_2	Annual	Limit value	40 µg/m³		40	30	20	–	10 µg/m³	
NO_2	24-hour	Target value			120	50	–	–	25 µg/m³	99th percentile (i.e. 3–4 exc. Days
SO_2	Hourly	Limit value	350 µg/m³	Not to be exceeded on more than 24 hours/year						
SO_2	24-hour	Limit value	125 µg/m³	Not to be exceeded on more than 3 days/year	125	50	–	–	40 µg/m³	99th percentile (i.e. 3–4 exc. Days/year)
CO	Max. daily 8-hour mean	Limit value	10 mg/m³						10 mg/m³	
CO	24-hour	Target value			7	–	–	–	4 mg/m³	99th percentile (i.e. 3–4 exc. Days/year)
C_6H_6	Annual	Limit value	5 µg/m³						1,7 µg/m³	Reference level
BaP	Annual	Target value	1 ng/m³	Measured as content in PM_{10}						
Pb	Annual	Limit value	0,5 µg/m³	Measured as content in PM_{10}					0,5 µg/m³	
As	Annual	Target value	6 ng/m³	Measured as content in PM_{10}					6,6 ng/m³	Reference level
Cd	Annual	Target value	5 ng/m³	Measured as content in PM_{10}					5 ng/m³	
Ni	Annual	Target value	20 ng/m³	Measured as content in PM_{10}					25 ng/m³	Reference level

-80%

-63%

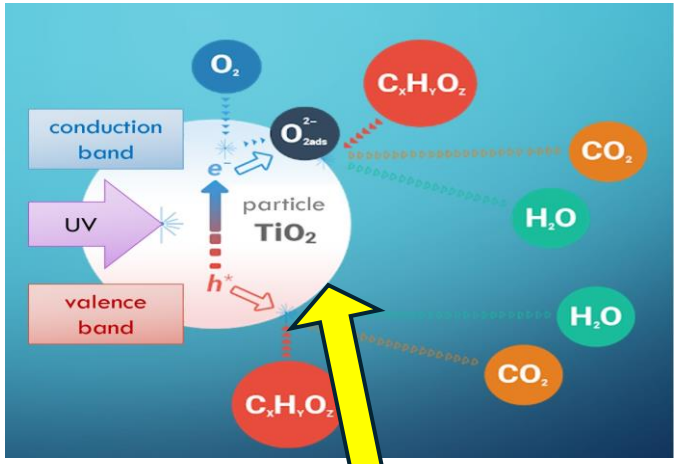
-75%

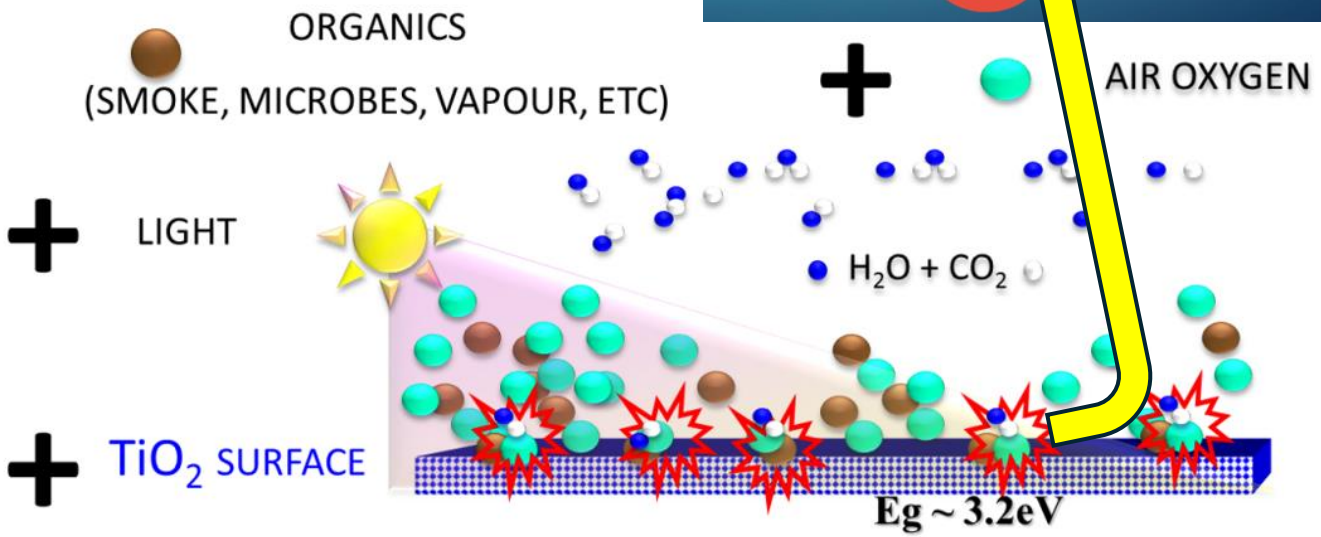

POLUTIANT AIR
or
CLEAN
Effectiveness of purifying: 80-90%

EXEL – PHOTOCATALYSIS

HOW DOES IT WORK?

CONVERSION OF LIGHT ENERGY INTO AN OXIDATION POTENTIAL ON THE SURFACE OF TITANIUM DIOXIDE





TiO2 under influence of UV light produces very reactive element **-OH•.** This oxidizing agent has the most powerfull oxidative potential (2.8 eV). Thanks that it is able to oxidaze many harmful and organic substances.

Catalysis pocess has no influence for fine dust. But it „produces" CO2. In fact, this is only accelerating of the process that naturally exists in the air. CO (very poisonous gas), under the influence of solar light captures oxide particles and converts itself into carbon dioxide. The faster that inevitable process occurs, the better for human beings, animals and environment.

In opposite to car catalytic converter, photocatalysis use UV light as a trigger of reaction, not exhaust heat. But the final result of the reaction is absolutely the same – decomposed harmful particules have changed into natural gases.

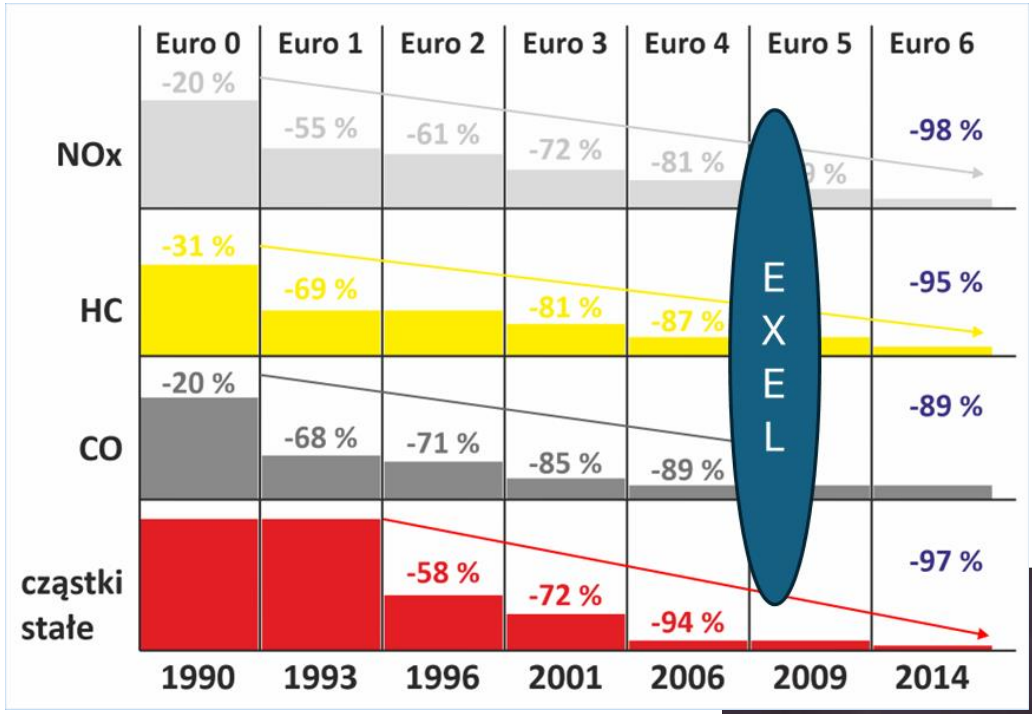
EXEL – THE WAY FOR POISONOUS GASES

EXhaust **EL**iminator is a result of brand new way of coating stainless steel lamellas with TiO2. That allows to extremely increase its efficiency of oxidizing and applicate even outdoor to remove harmfull substancies. **EXEL** may work as a passive device or an active one (sucking the air).

FACTS & ADVANTAGES

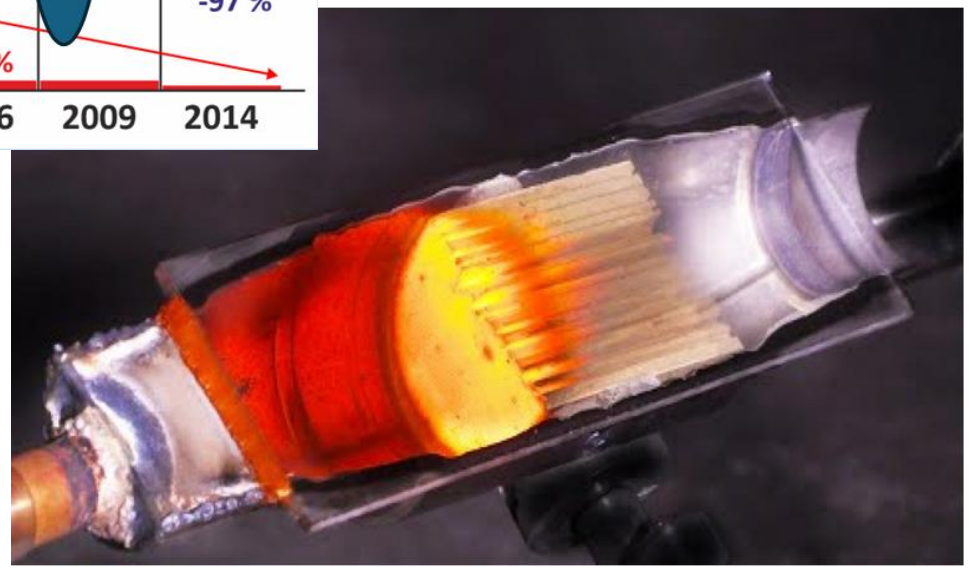
1. During the cleaning process, **contaminants DO NOT accumulate** on the filter, but they are completely decomposed to harmless air components. NOx, CO, CH are transformed into H2O, O2, N2 and CO2.
2. EXEL **destroys harmful compounds**: Iso-butane, tobbacco smog, acetone, ammonia, ethyl acetate. The proces of catalysis has a wide range of aplication, especially in the chemical industry.
3. **Safe to humans, animals and plants.** Catalysts are successfully used for from early `90. The first exhaust gases norm (EURO1) is from 1993. There is EURO6 now.
4. **Low power** consumption. Depends on the size – EXEL Passive:100-150W, EXEL Active: 300-400W.
5. **Low** permanent **costs** and low maintenance costs. 10 years guarantee, 1 service for about 5 years.

EXEL – EFFICIENCY



Our of the devices was tested in a laboratory by TUV Nord (German Institute) and the results are **excellent** and **confirmed** by certificates. The majority of pollutants are transformed in **proces of photocatalisation** into a steam and not harmful compounds. That is why we call it EXEL – as an association to “excellent” and **EX**haust gases **EL**iminator.

EFFECTIVENESS 80-90%
(depends of the substance)



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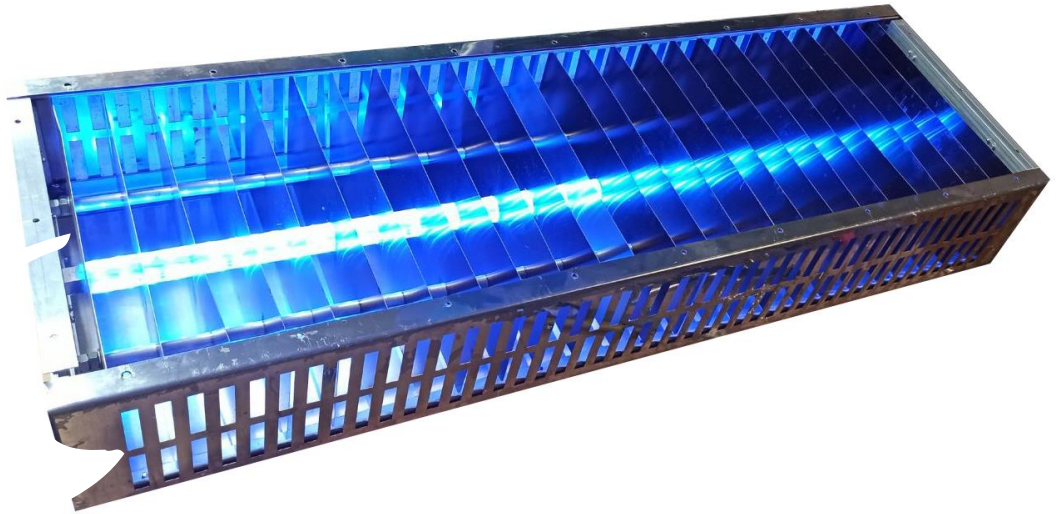
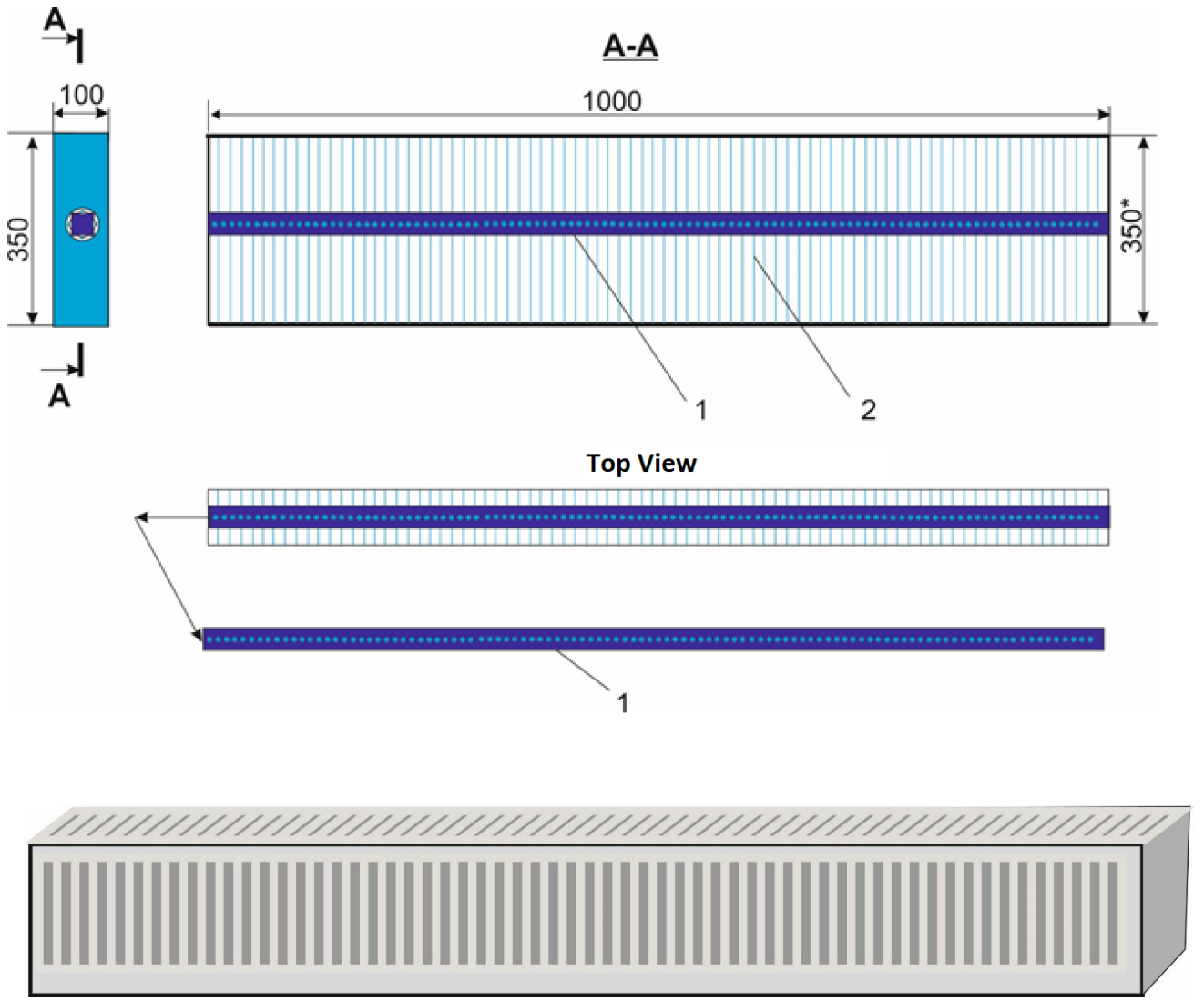
EXEL – PASSIVE

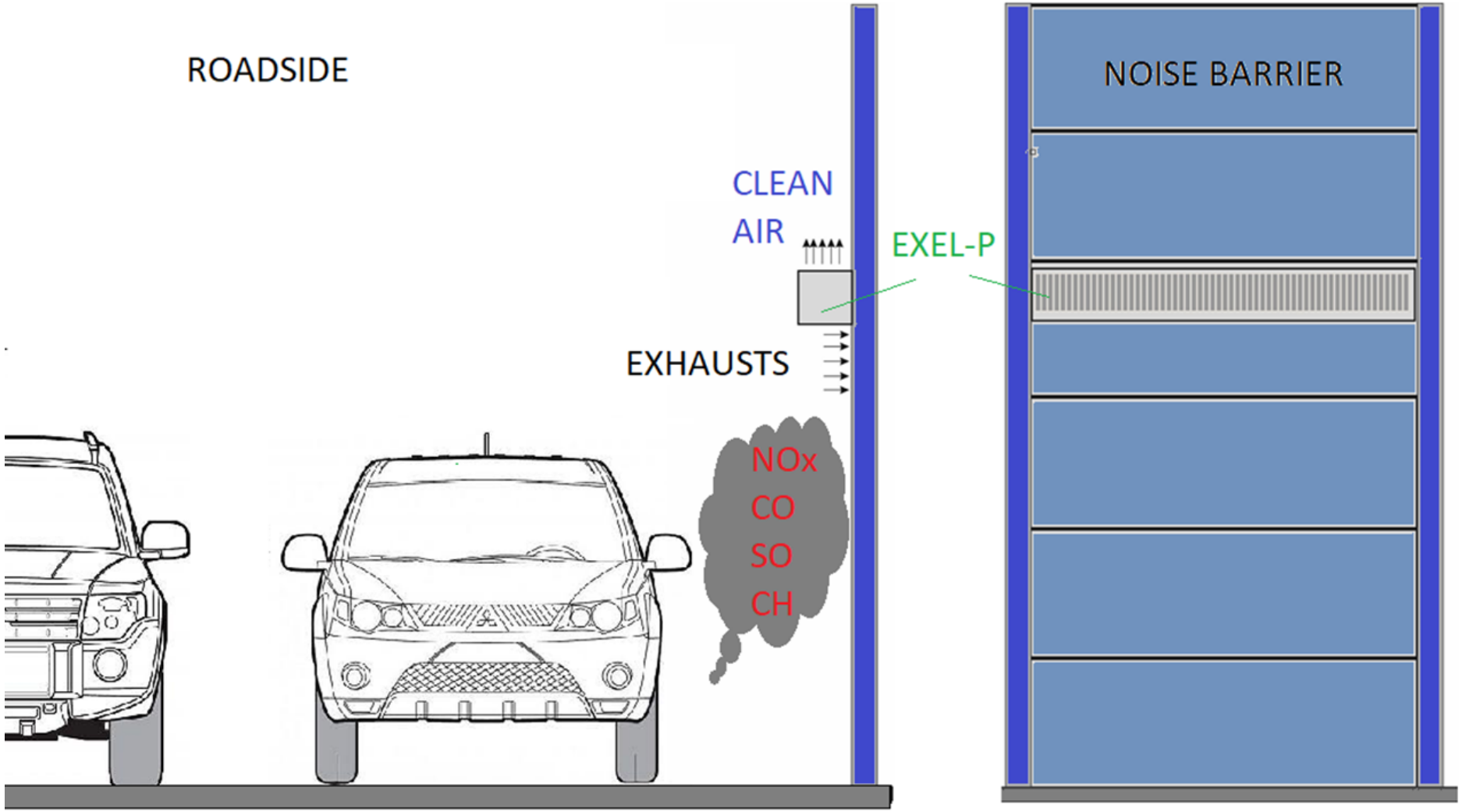


EXEL – PASSIVE

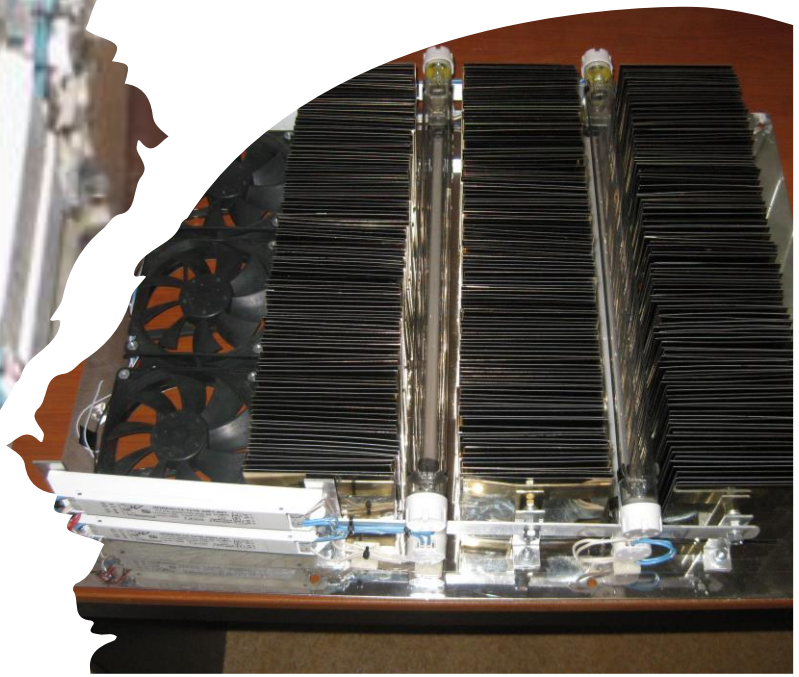
1 - UV Stripe light
2 - Catalyst lamellas
3 - Safety case



EXEL – PASSIVE

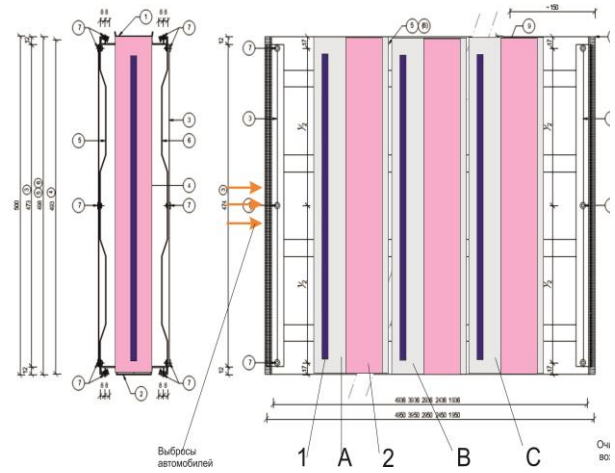


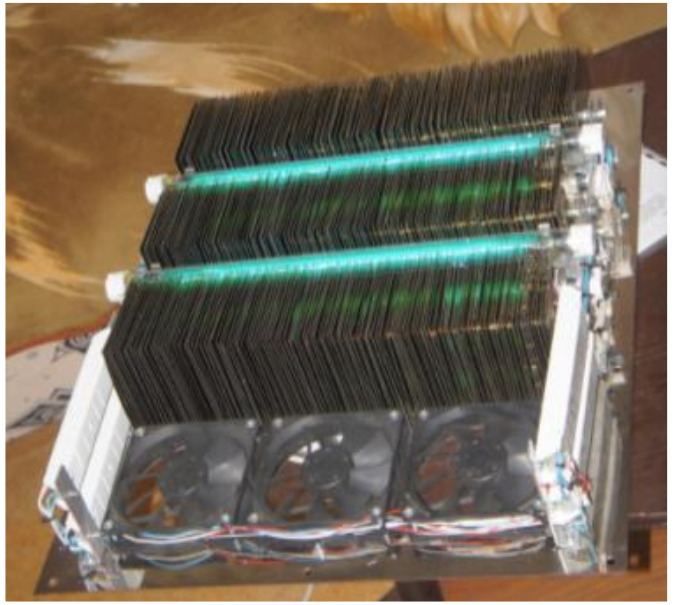
EXEL – ACTIVE

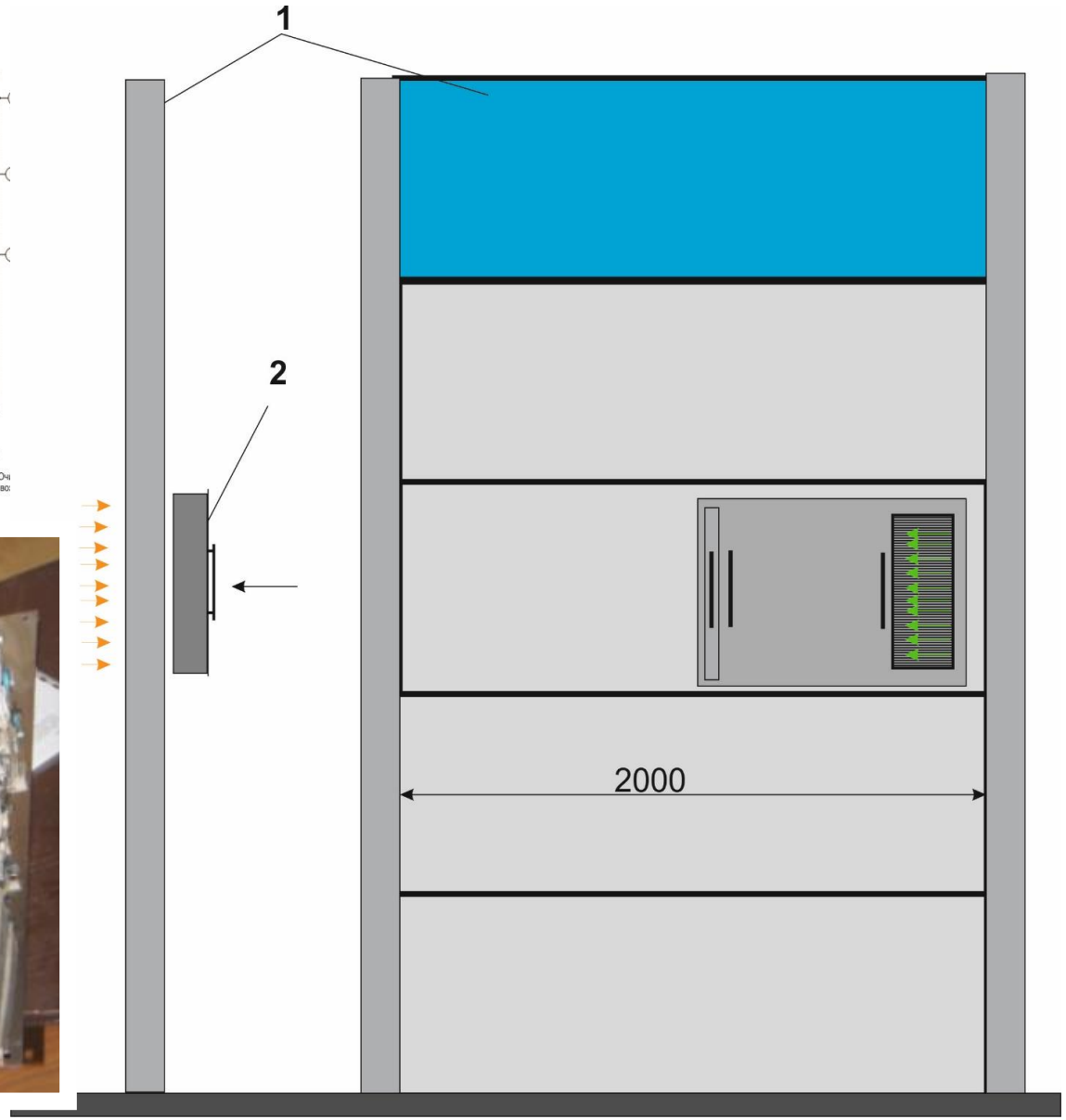


EXEL – ACTIVE

The most important different between EXEL PASSIVE and ACTIVE is concentration of lamellas with TiO2 and fans. Thanks that polluted air might be sucked and push between lamellas. It enormous increases efficiency of purification.





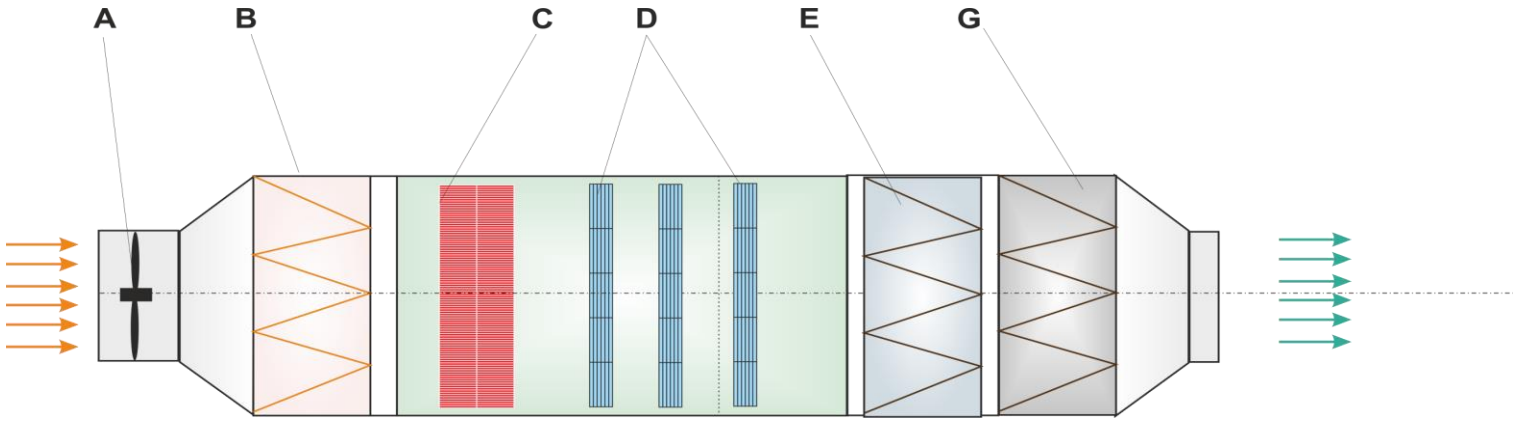


EXEL – ACTIVE

EXEL – ACTIVE

Efficiency: Exhaust emissions ~ 2.5 t / annualy

If we add electrostatic filter for PMs, we will have completed set for all kinds of pollutants.

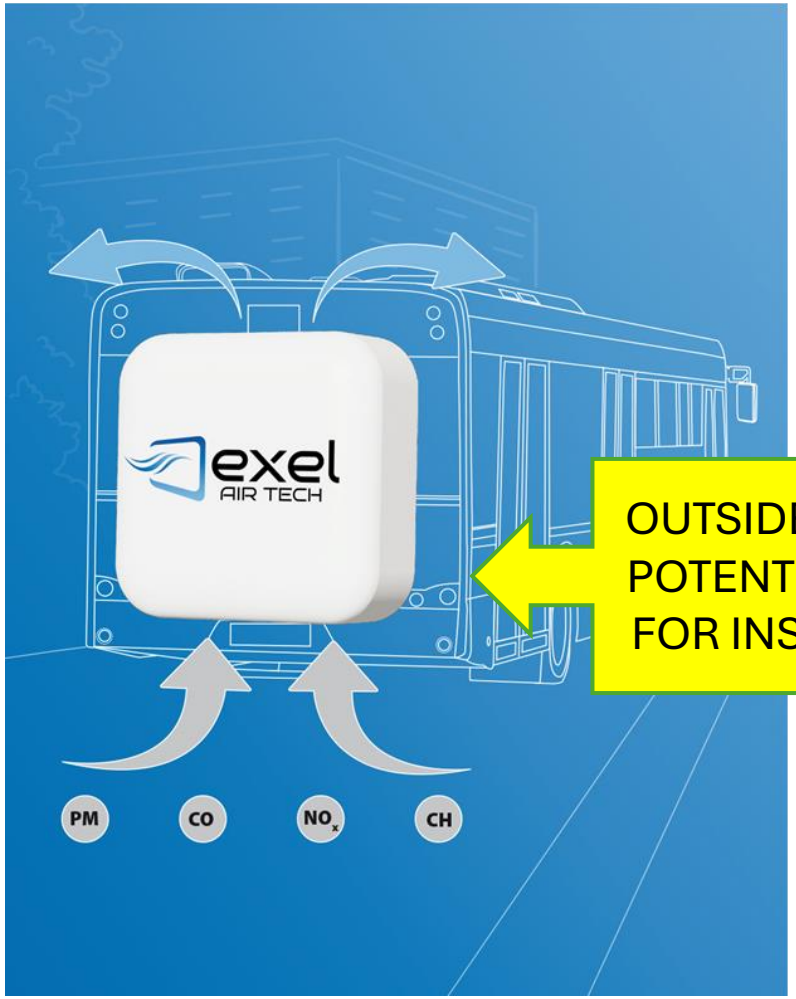


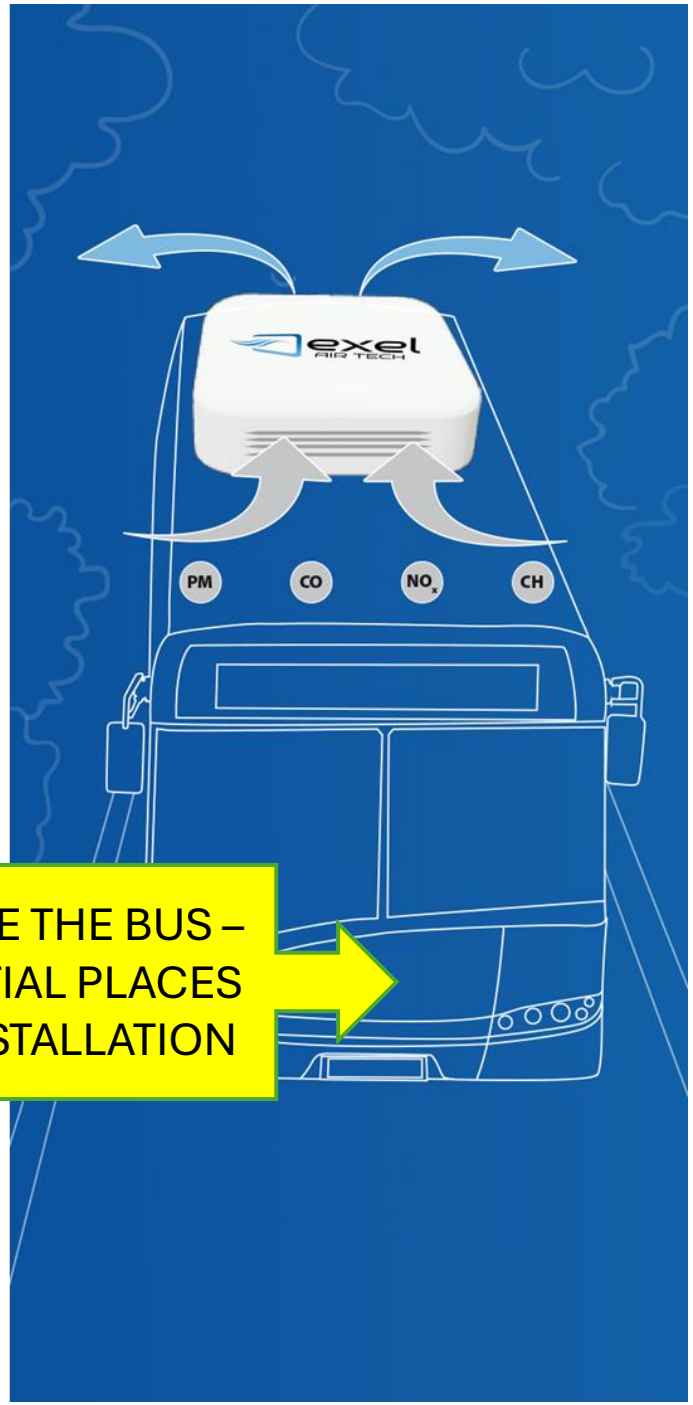
DIRTY STREET AIR, A – Air filter, B – Ventilator, C – Electrostatic filter for PMs, D – Photocatalysis modul, E, G – Ozone destructors, CLEAN AIR

EXEL – PATENTED SOLUTION

EXEL – ADAM

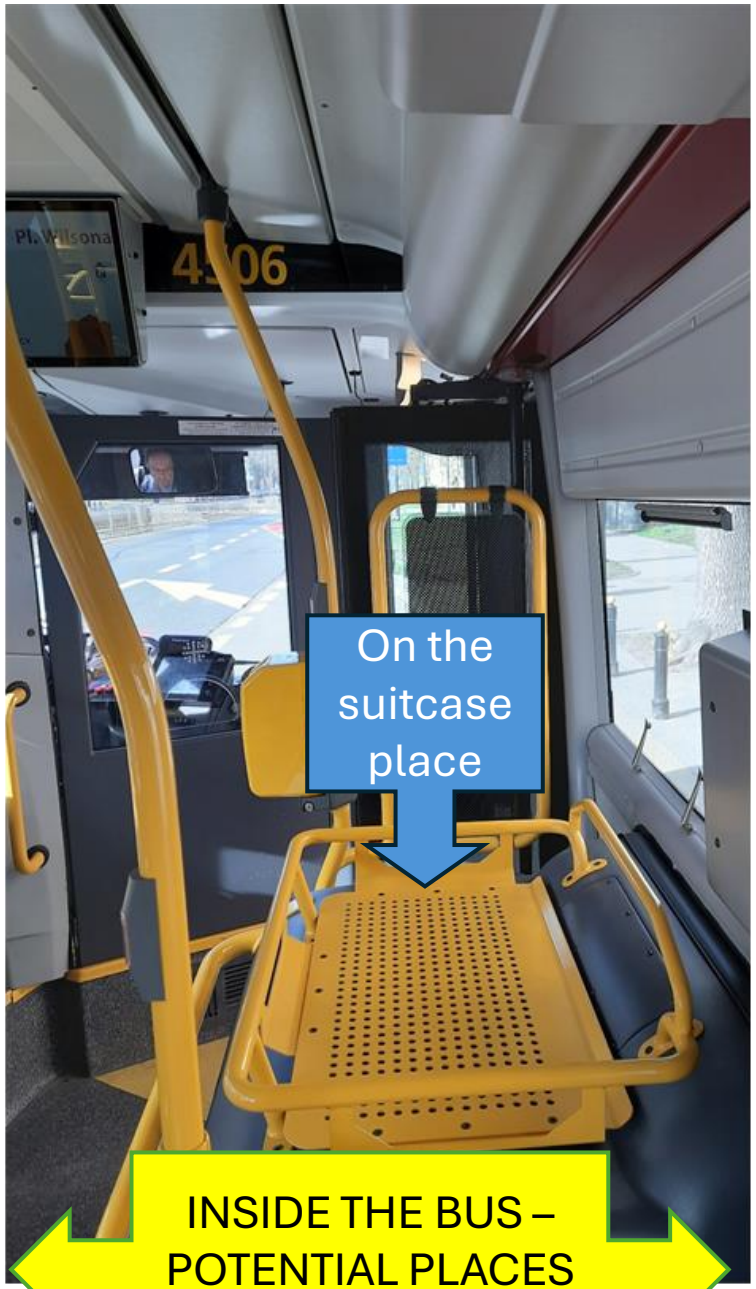
Aero
Dynamic
Autotransport
Mount





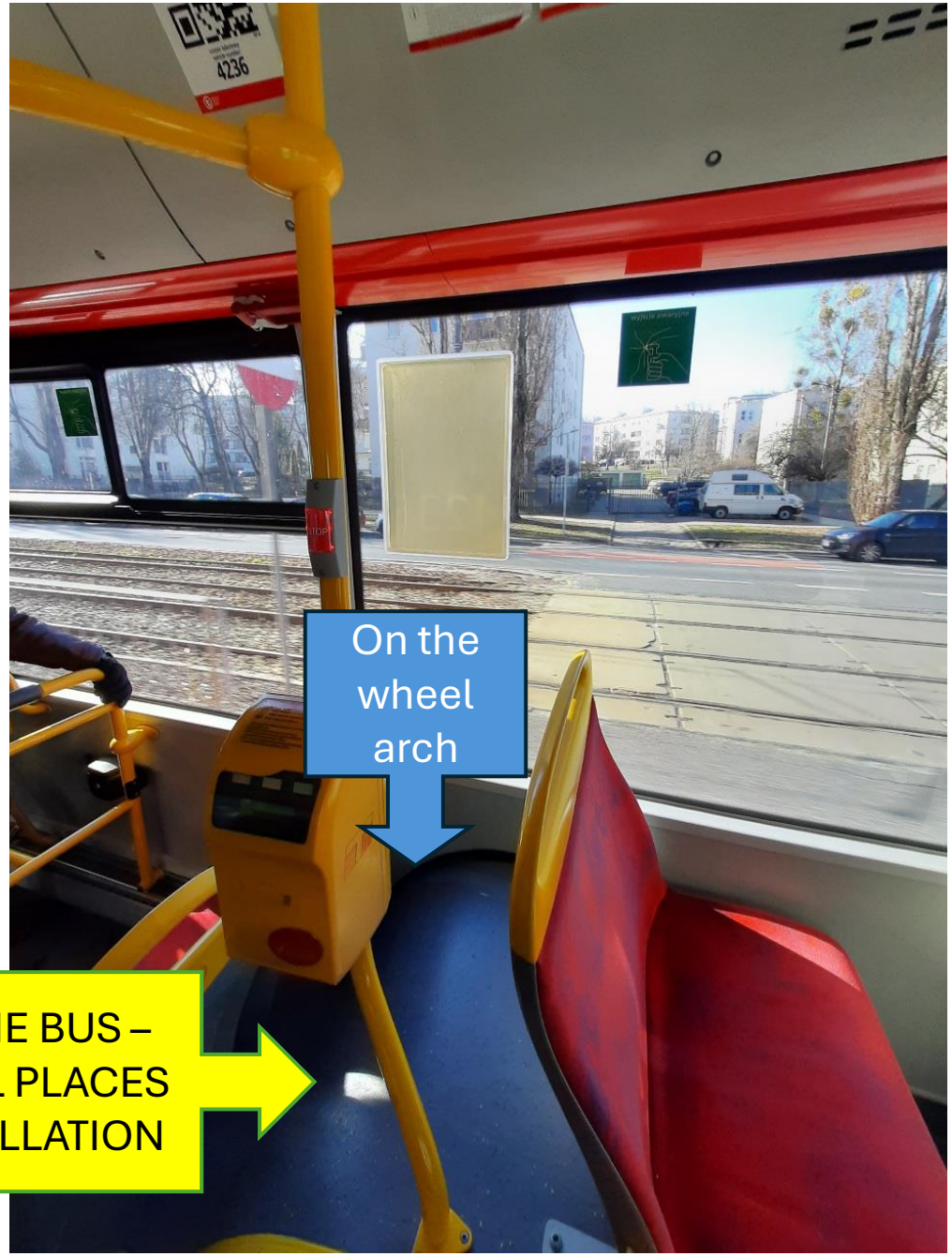
OUTSIDE THE BUS – POTENTIAL PLACES FOR INSTALLATION

EXEL – ADAM



INSIDE THE BUS – POTENTIAL PLACES FOR INSTALLATION

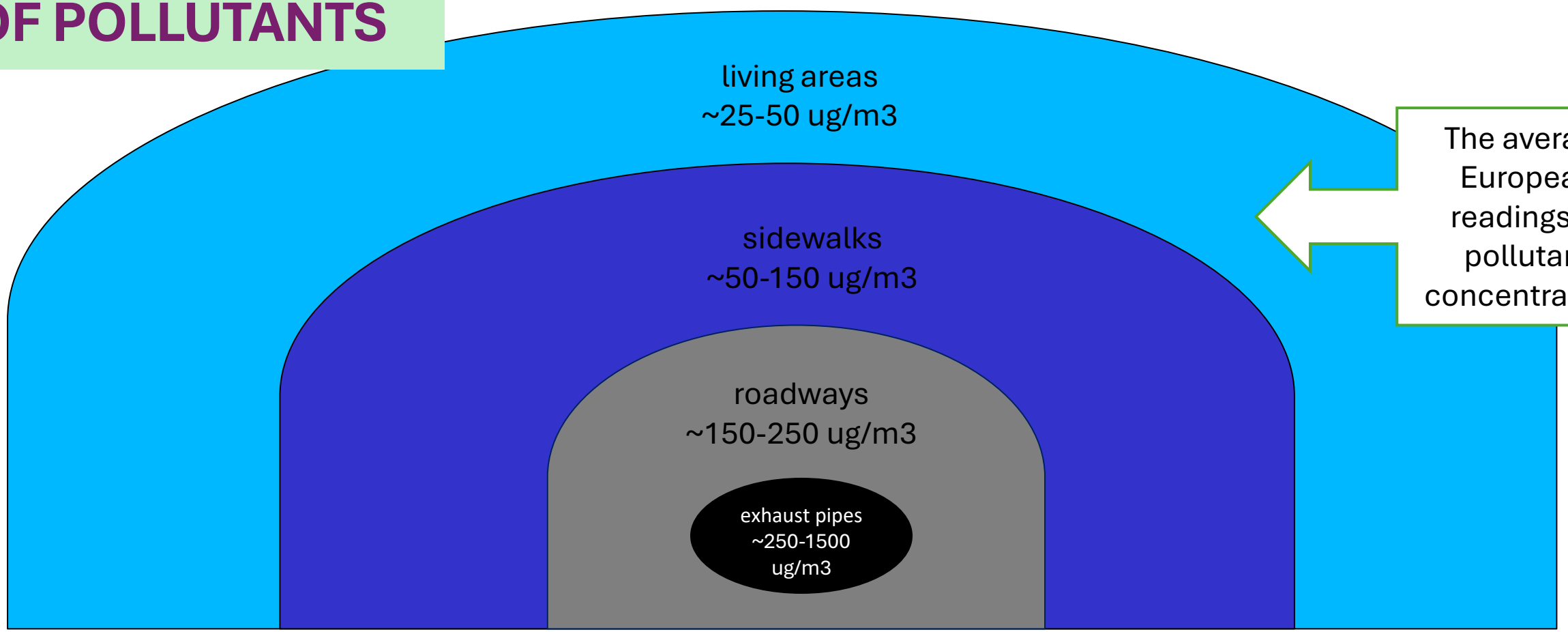
EXEL – ADAM



INSIDE THE BUS – POTENTIAL PLACES FOR INSTALLATION

EXEL – ADAM

CONCENTRATION OF POLLUTANTS



The average European readings of pollutant concentration.

The closer to a source, the higher concentration of pollutants. It means that efficiency is bigger if EXEL is so close as it possible.

centimeters

meters

several meters

dozens of meters

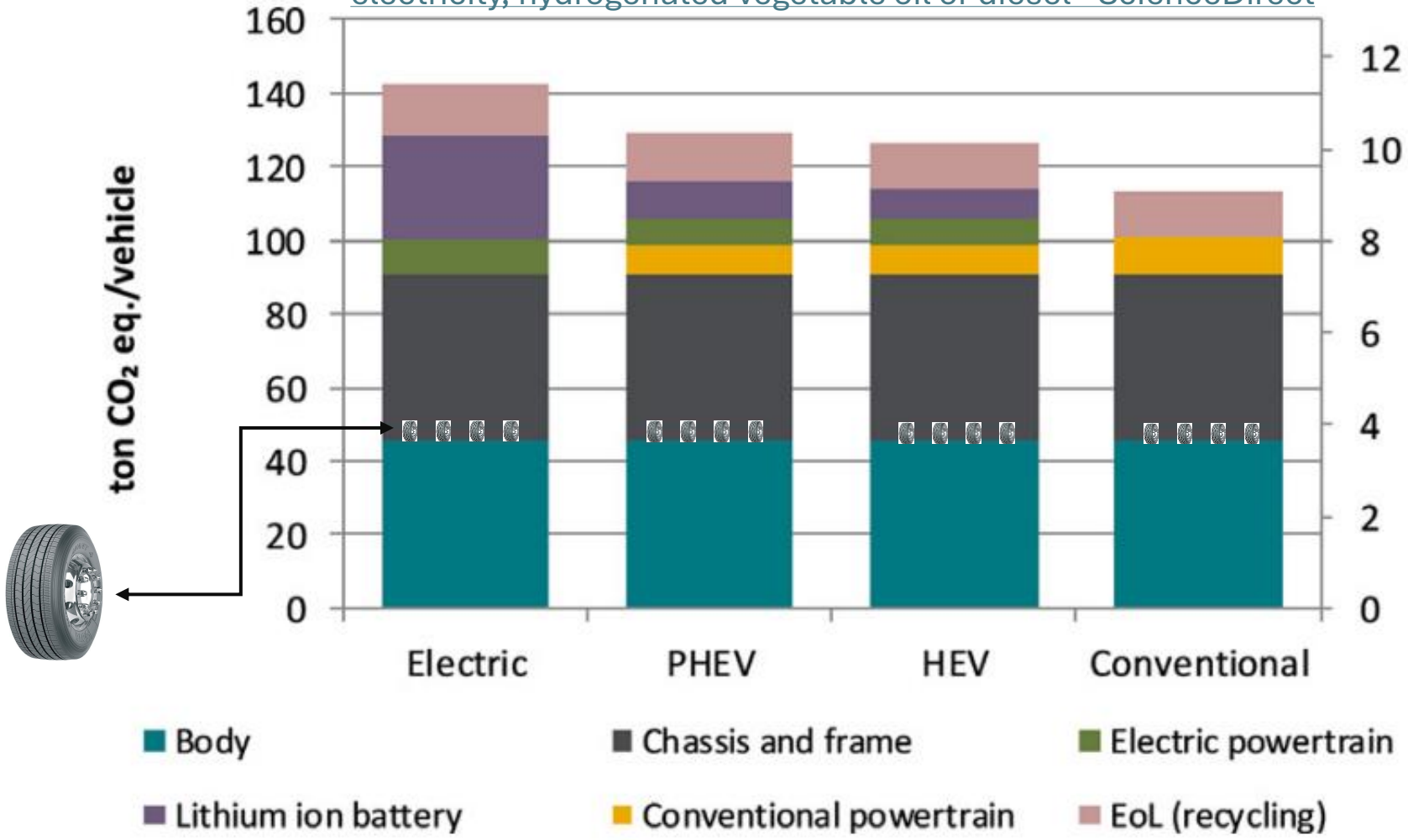
EXEL – DECARBONISATION AND ENVIRONMENT PROTECTION

versus

The carbon footprint and resources required to produce a single bus are enormous (more than . Considering the amount of materials used in our device, we estimate that producing one EXEL device consumes as much energy and resources as producing one or two bus wheels. Furthermore, our device requires no disposal; it can be remanufactured after approximately ten years of continuous use. This means its environmental and climate impact is virtually zero, and the reduction in pollution is immediate.

ELECTRIC BUSES – NON-ZERO EMISSION

Fuente: Life cycle assessment of city buses powered by electricity, hydrogenated vegetable oil or diesel - ScienceDirect



CONCLUSION: The most environmentally friendly bus is the one that hasn't been manufactured!

EXEL – THE MOST...

State of the art
There are no buses with this solution anywhere in the world.

The cheapest
The purchase price is a fraction of the price of a new bus.

The most effective
Incomparable ability to improve the air.

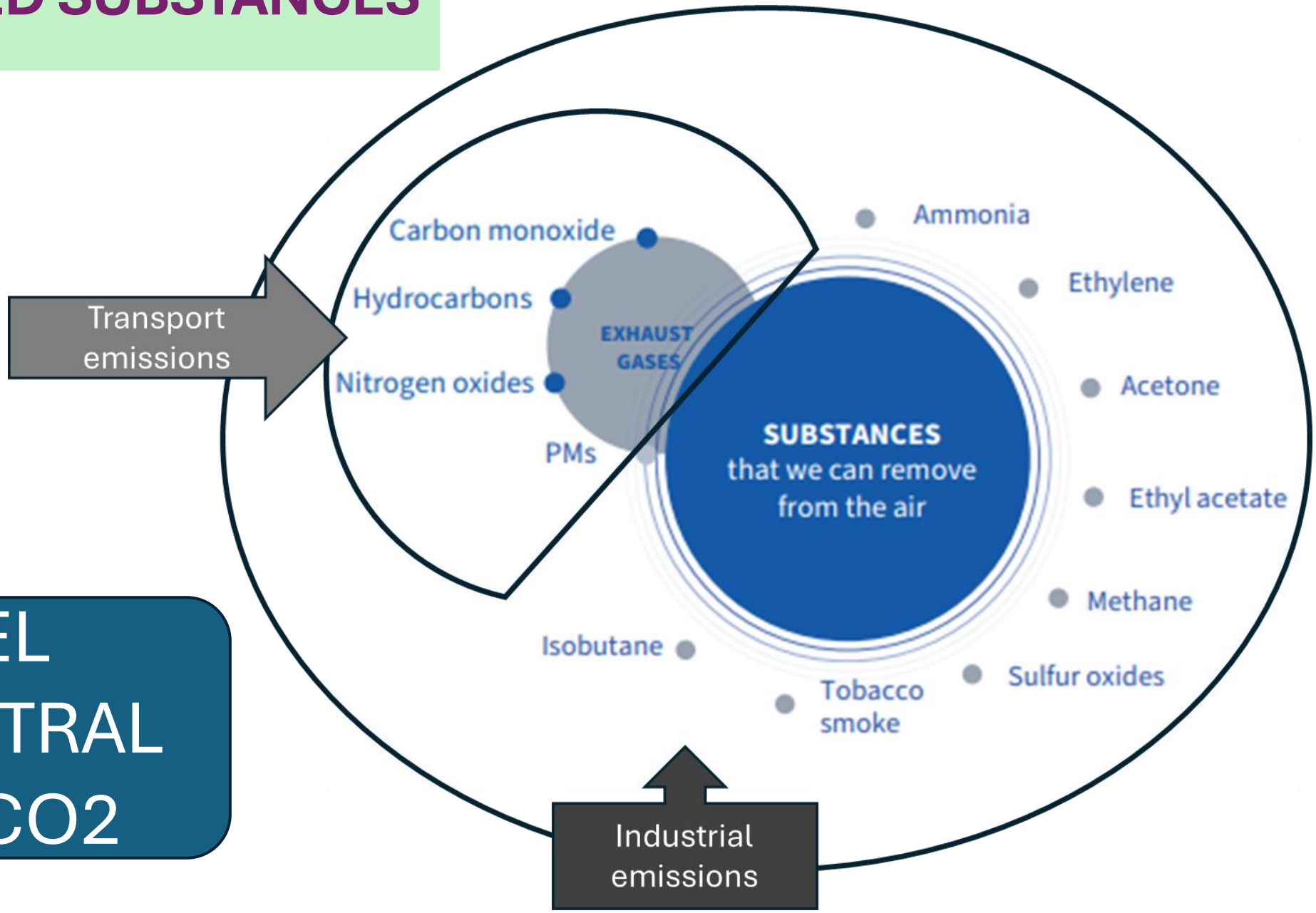
The most universal
The system fits any bus.

The most durable
The service life is 10 years plus the possibility of renewal.

The loudest
But only for promotional and marketing purposes.

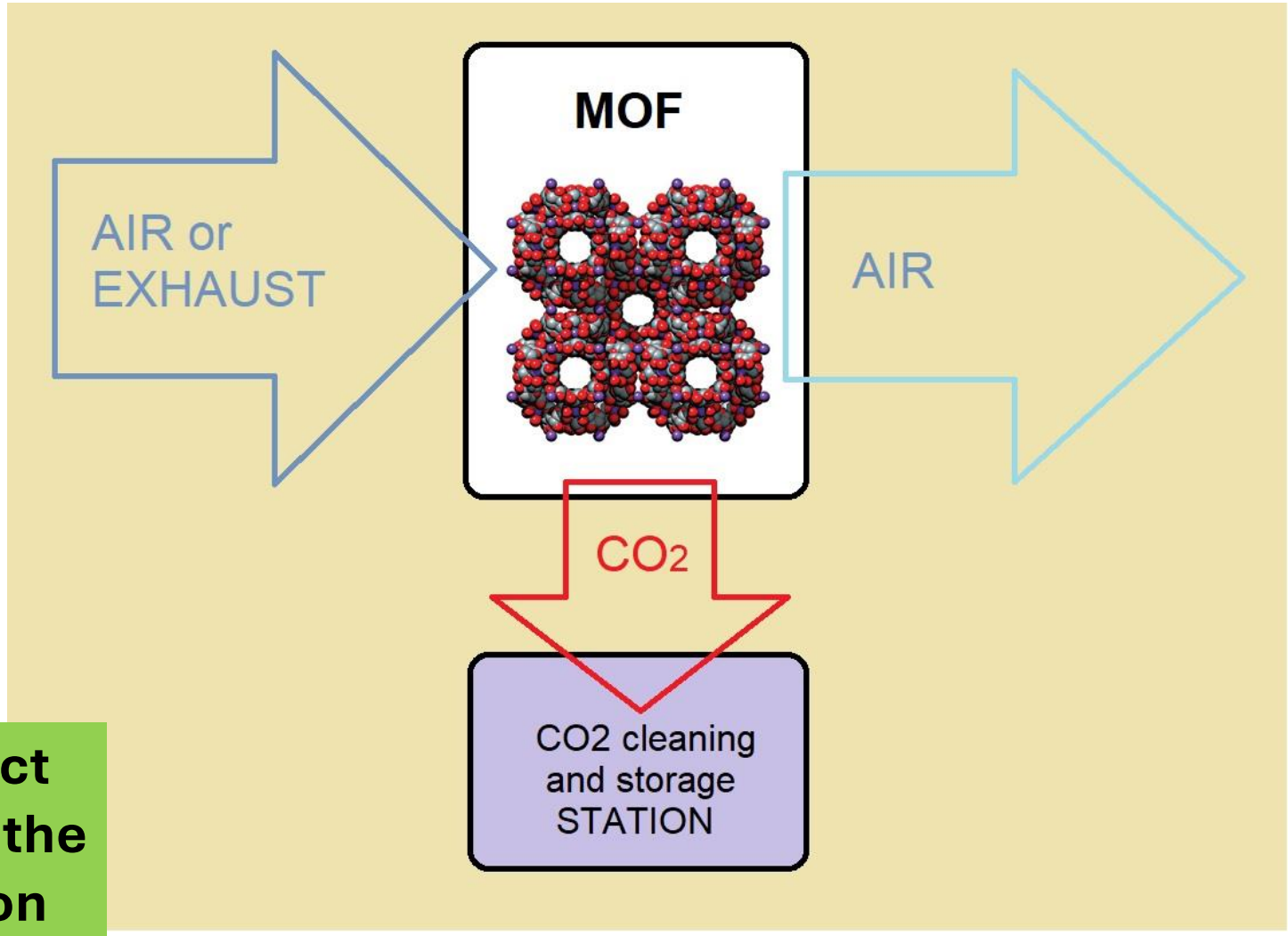
EXEL – FULL SPECTRUM OF POSSIBILITIES

ELIMINATED SUBSTANCES



EXEL
IS NEUTRAL
FOR CO_2

DECARBONISATION



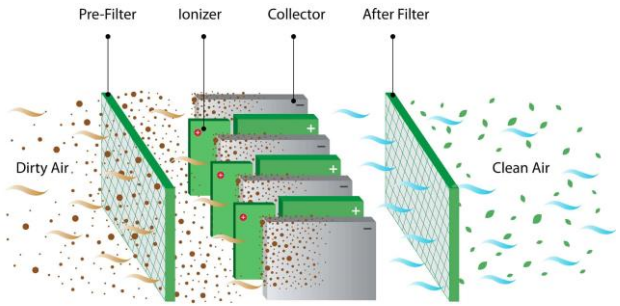
Equipment based on Metal Organic Frameworks technology to capture CO2.

Captured CO2 may be used (or sold) as a technical gas.

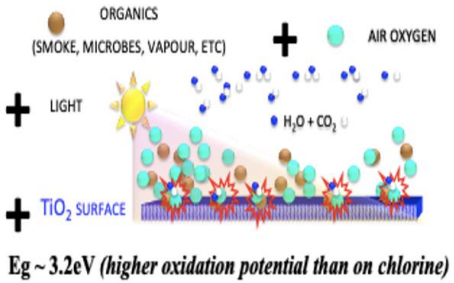
Perfect way of the carbon offset

EXEL – ALL IN ONE

Electrostatic filters
PM (full range)

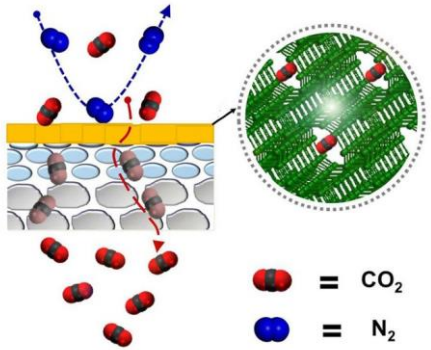


Photocatalysis
Harmful gases

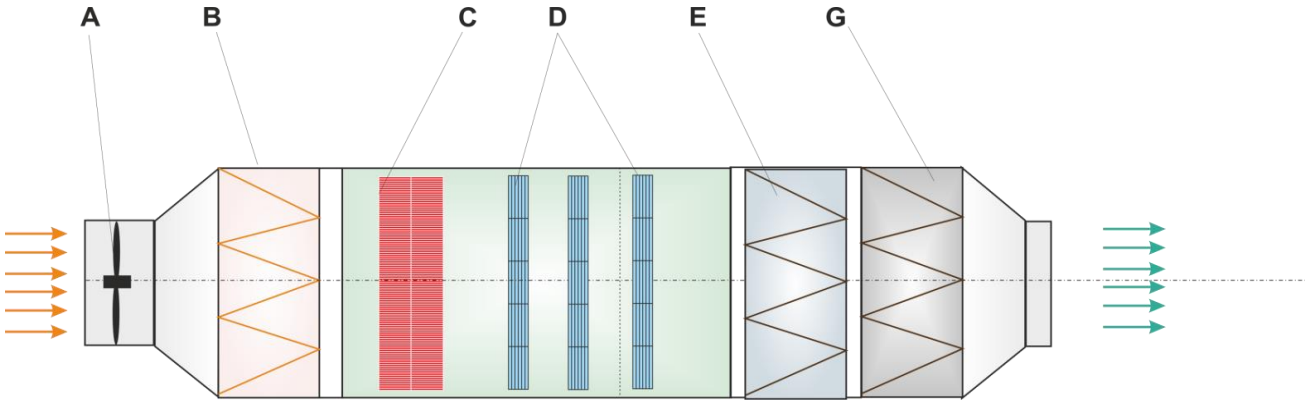


Eg ~ 3.2eV *(higher oxidation potential than on chlorine)*

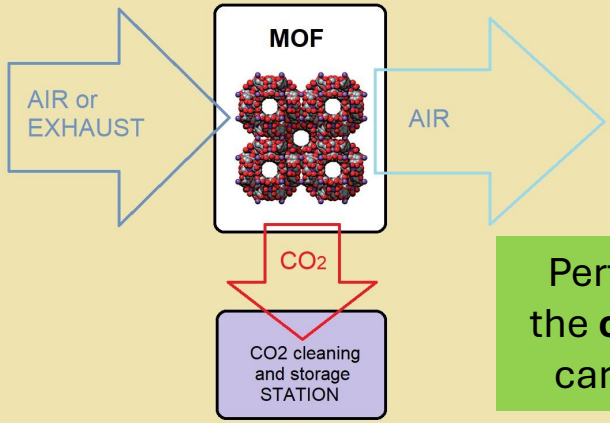
Metal-Organic Frameworks
Capturing CO2



Air purification



Decarbonisation

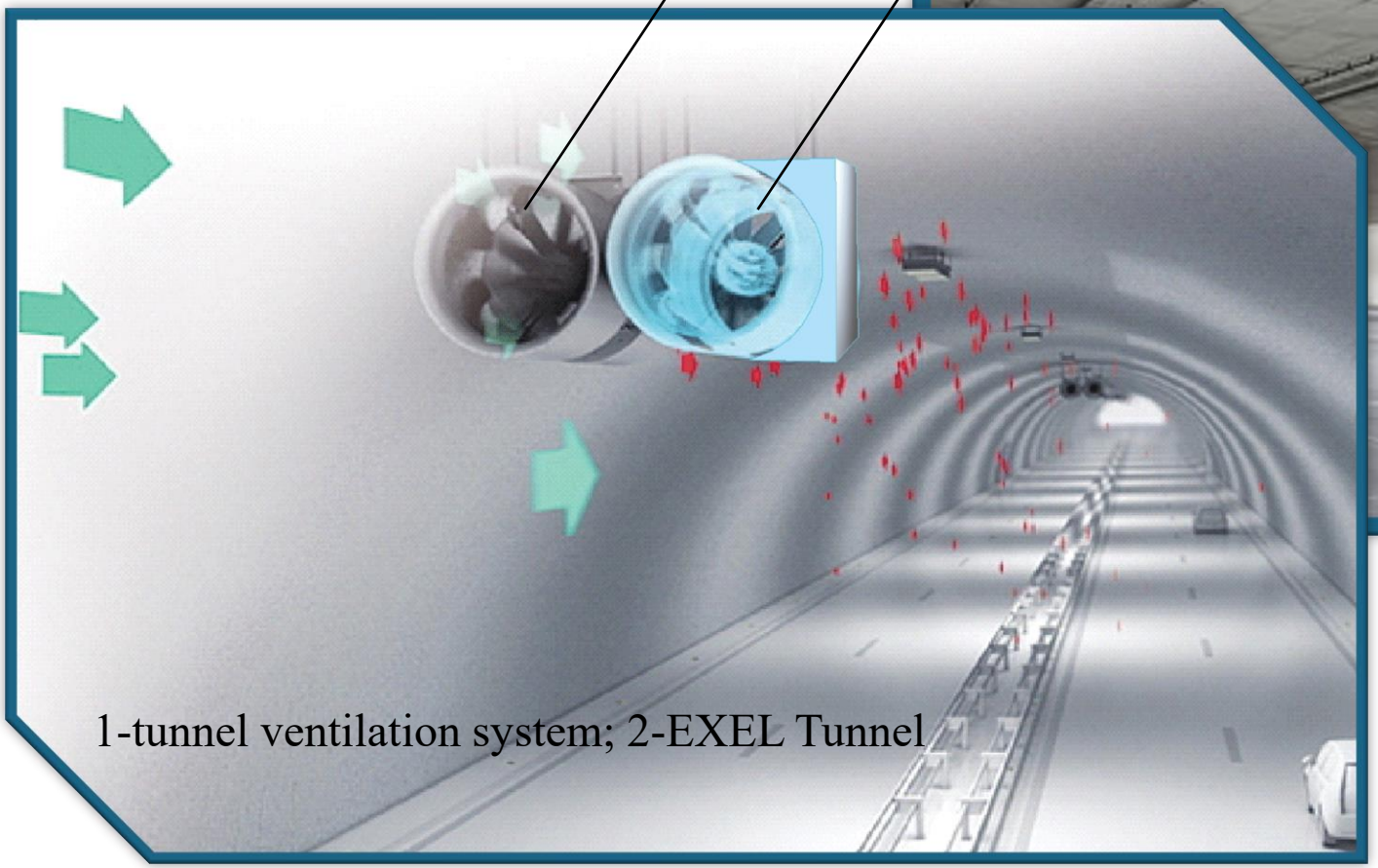


Perfect way of the **certificated** carbon offset

EXEL – DIFFERENT APPLICATIONS

TUNNEL

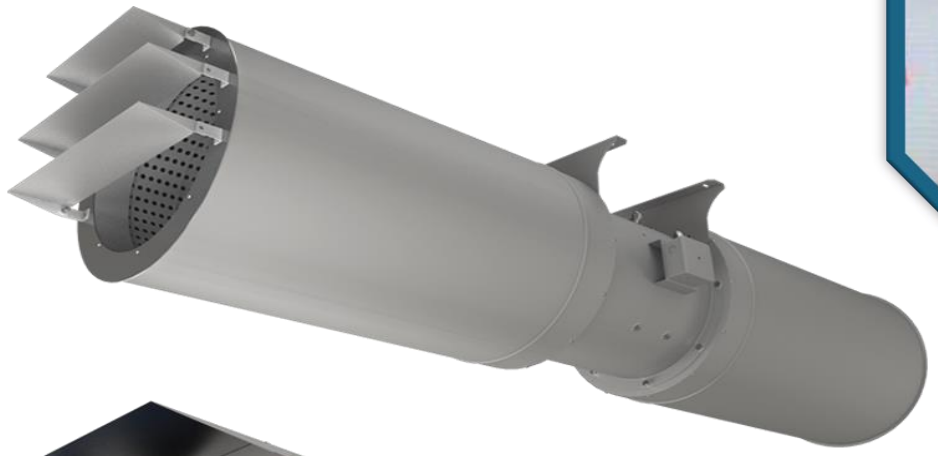
EFFICIENCY
80-90%

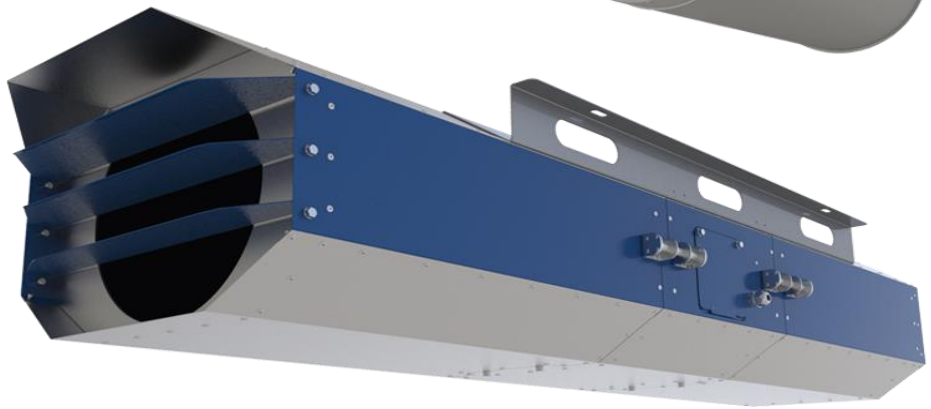


1-tunnel ventilation system; 2-EXEL Tunnel

EXEL TUNNEL will be installed parallel to main fan system. Number of installations should be valuated. Possibly only several pieces should be installed at the end of tunnel.

UNDERGROUND PARKING



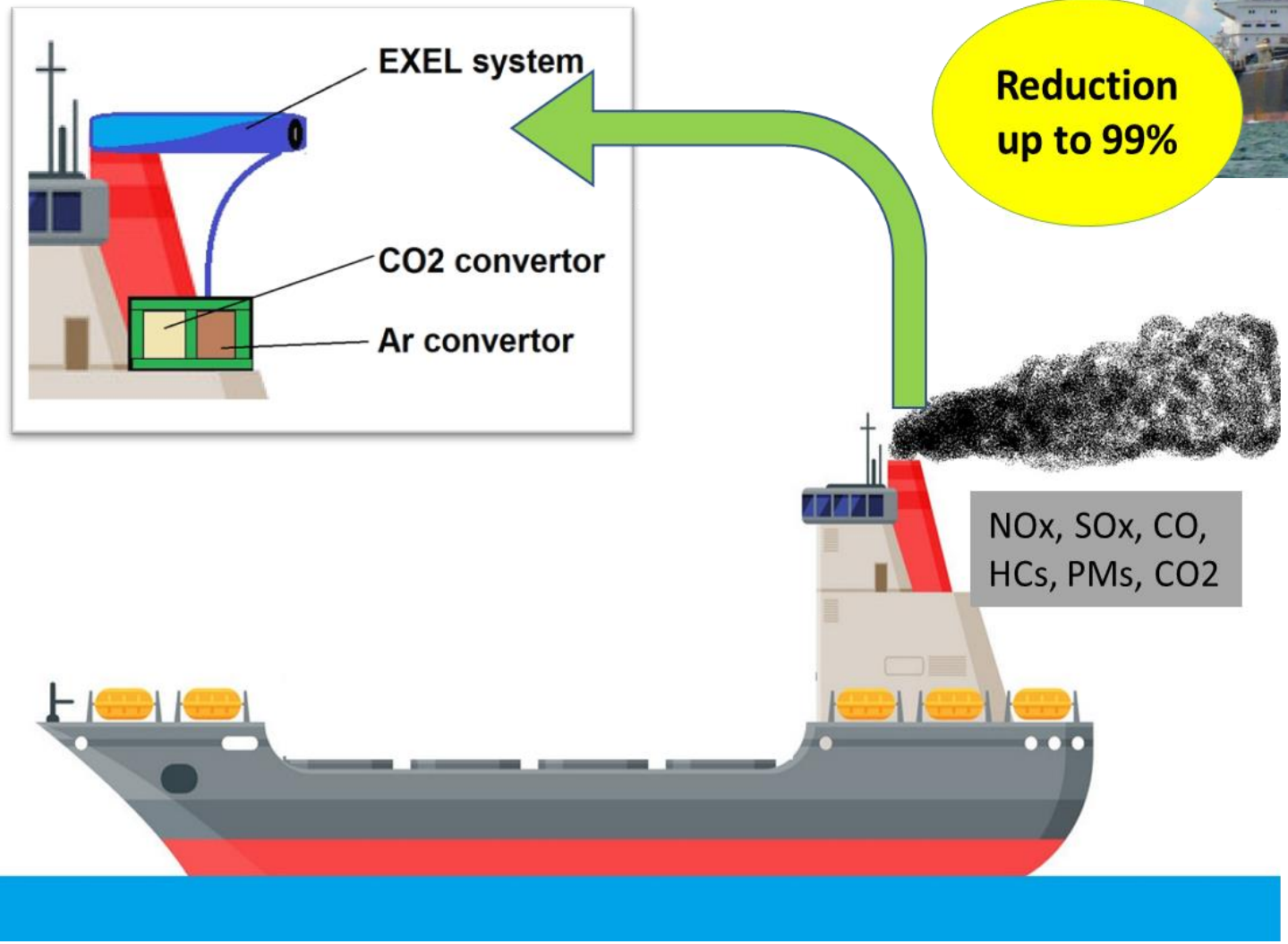


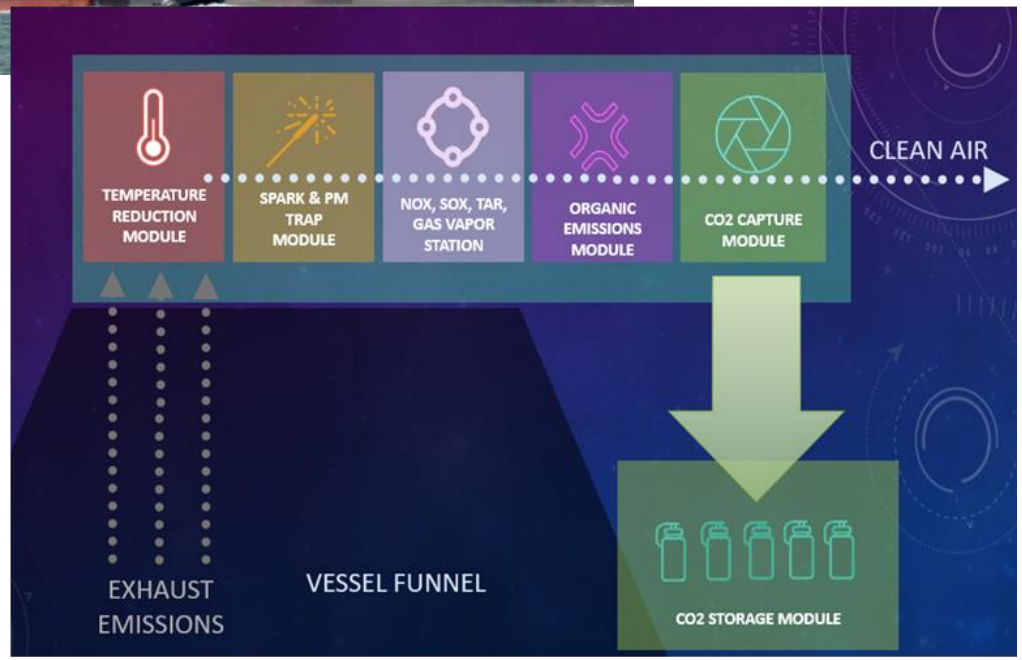
Following emissions will be purified:

- Carbon monoxide CO
- Hydrocarbons
- Aldehydes
- Carbon black (soot)
- Benzpyrene-3,4

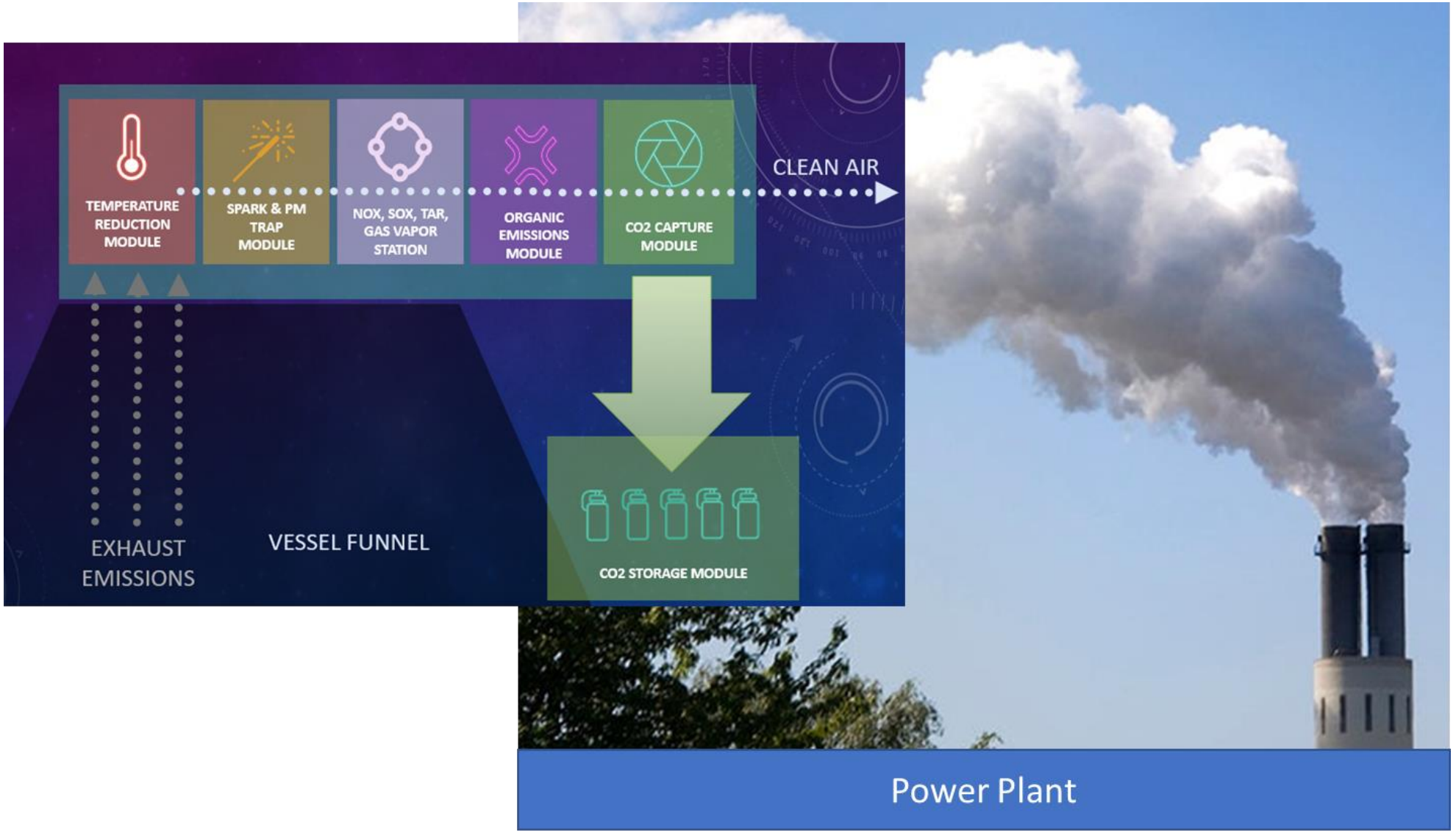
EFFICIENCY
80-90%

SHIPS


EXEL system
CO2 convertor
Ar convertor
Reduction up to 99%
NOx, SOx, CO, HCs, PMs, CO2


TEMPERATURE REDUCTION MODULE
SPARK & PM TRAP MODULE
NOX, SOX, TAR, GAS VAPOR STATION
ORGANIC EMISSIONS MODULE
CO2 CAPTURE MODULE
CLEAN AIR
EXHAUST EMISSIONS
VESSEL FUNNEL
CO2 STORAGE MODULE

POWER PLANT


TEMPERATURE REDUCTION MODULE
SPARK & PM TRAP MODULE
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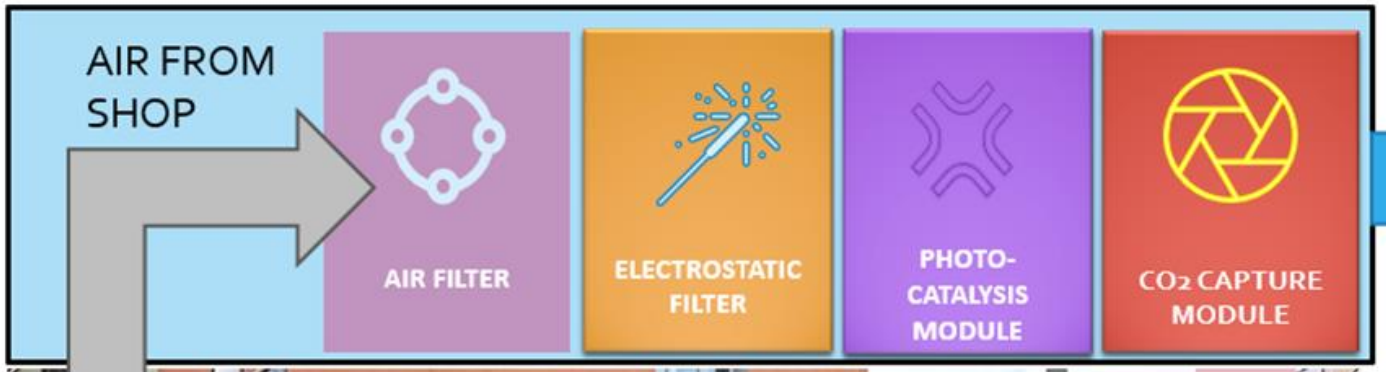
ORGANIC EMISSIONS MODULE
CO2 CAPTURE MODULE
CLEAN AIR
EXHAUST EMISSIONS
VESSEL FUNNEL
CO2 STORAGE MODULE
Power Plant

PURIFICATION AND DECARBONISATION

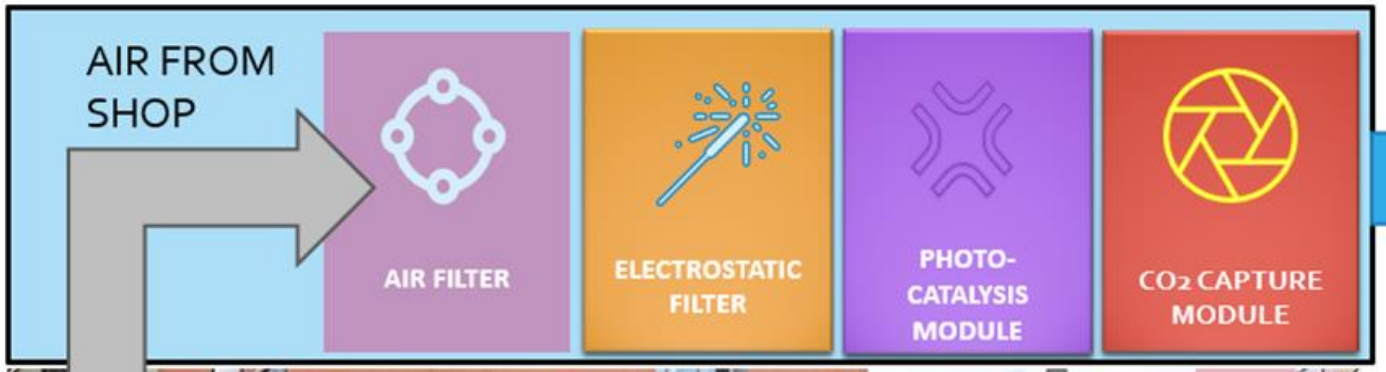


Air Purification:
Exhaust gases emissions, Chemical emissions, dust, PM, Odour, Viruses, Bacteria, Allergens, Mold & Fungus

Efficiency CO_2 capture (Carbon Footprint):
~ 13.7 t / annual

Income from CO_2 sale
~ 13.7 t / annual

PURIFICATION AND DECARBONISATION



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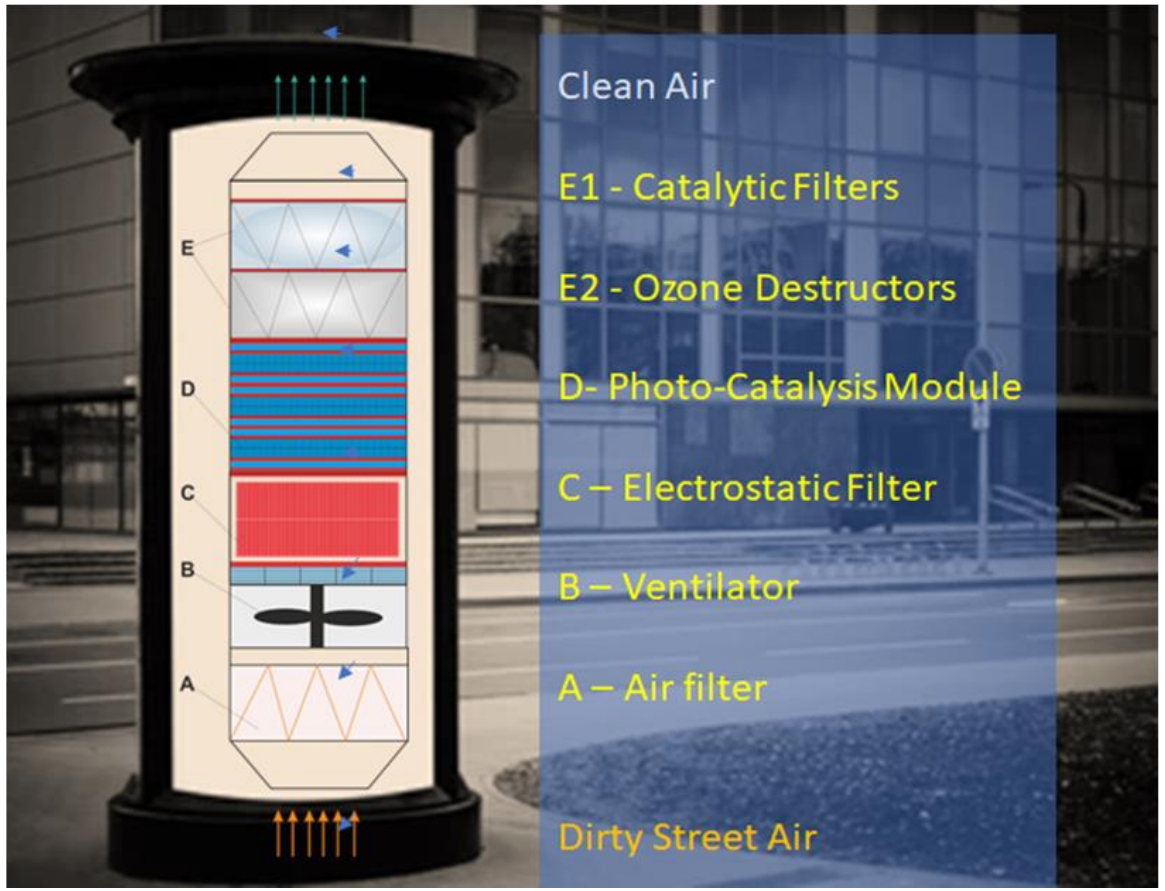
OUTDOOR PURIFICATION

Purification: exhaust gases, chemical emissions, dust, PM, odours, viruses, bacterias, allergens, mold, fungus

Effectiveness of purifying: **80-90%**



INDOOR PURIFICATION

Photo-catalysis equipment for air purification in recycling mode

Integrated Equipment

Independent Equipment

ESG	Sustainbility, environmental protection, clean air, non-financial reporting
CO2	Carbon footprint, CO2 offset, capturing and trade, net zero or net negative

EXEL – DOCUMENTARY

TÜV NORD

Certificate
of conformity with the following
European Directives

Registered No.:
1912604735E/E19/46046

Electromagnetic Compatibility Directive 2014/30/EU

This is to certify that the following products comply to the essential requirements of the above mentioned European Directive and the following standards:

Product: Photocatalytic filtration equipment KOHLHAUER

Type designation: EXEL P
(12 V, 120 W, Class II, IP24)

Applicant: Kohlhauer East Group SIA
119 Karla Ulmana gatve, Marupe, Rigas rajons, LV-2167, Latvija

Standard(s): LVS EN 61000-6-2:2005 + AC:2005
LVS EN 61000-6-3:2007 + A1:2011 + AC:2012

The Certificate of conformity is based on the evaluation of samples of the product. It does not imply an assessment of the production and it does not permit the use of a mark of conformity or of a safety mark of the TÜV NORD Group. This is to certify that the tested sample is in compliance with the essential requirements referred to Electromagnetic Compatibility Directive 2014/30/EU. The holder of this certificate may use this Certificate together with the EU-Declaration of Conformity.

CE The CE marking may be affixed on the product if all relevant and effective Directives are complied with. CE

№ 001216

KOHLHAUER EAST GROUP SIA
Kārļa Ulmaņa gatve 119, Mārupes nov., Rīgas rajons, LV-2167
Phone: +371-67889522
e-mail: office.riga@kohlhauer.lv
web: www.kohlhauer.com

KOHLHAUER

EU Declaration of Conformity (DoC)

In accordance with EN ISO/IEC 17050-1:2010

№ 1-18052020

We,
Company name: Kohlhauer East Group SIA
Postal address: Karja Ulmana gatve 119, Mārupe, Rīgas rajons, LV-2167, Latvija.
Telephone number: +371-67889522
E-Mail address: office.riga@kohlhauer.lv

declare that the DoC is issued under sole responsibility of the manufacturer and belong to the following product:

EXEL A
INDUSTRIAL PHOTOCATALYTIC AIR PURIFIER

Models: NewTiOAISL8-WA.200-L.60-1000

The object of the declaration described above is in conformity with the relevant Union harmonization legislation: Directive 2014/35/EU (LVD).

The following harmonized standards and technical specifications have been applied:

	№	Title
LVD	LVS EN 60335-2-65:2004 + A1:2008 + A11:2012	*Household and similar electrical appliances - Safety - Part 2-65: Particular requirements for air-cleaning appliances*
	LVS EN 60335-1:2012 + A11:2014 + A13:2018 + A14:2019	*Household and similar electrical appliances - Safety - Part 1: General requirements (IEC 60335-1:2010, modified)*

Test report references:

	Test report №	Date	Testing laboratory
LVD	1912604735E/45026/TR/20	11.05.2020	TUV NORD Baltik LLC, LVD Testing Laboratory.

Certificate of conformity references:

	Certificate №	Date	Certification Body
LVD	1912604735E/L20/48028	18.05.2020	Certification Body of TUV NORD Baltik LLC.

Conformity assessment body:

Name	Address
TUV NORD Baltik LLC, LVD Testing Laboratory.	3 Seremas Street, Riga, LV-1005, Latvia.
Certification Body of TUV NORD Baltik LLC.	3 Seremas Street, Riga, LV-1005, Latvia.

Signed for and on behalf of:

Name, Surname: **Ruslans Volfs** **Signature:**

Position / Title: **Member of Board** **Date:** **20.05.2020**

CE

MĀRUPE, LATVIJA

TÜV NORD

Certificate
of conformity with the following
European Directives

Registered No.:
1912604735E/L20/48028

Low Voltage Directive 2014/35/EU

This is to certify that the following products comply to the essential requirements of the above mentioned European Directive and the following standards:

Product: Industrial photocatalytic air purifier

Type designation: NewTiOAISL8-WA 200-L60-1000
(230 V, 50 Hz, 460 W, IP20, Class I)

EXEL

Applicant: Kohlhauer East Group SIA
Karla Ulmana gatve 119, Mārupe, Rigas rajons, LV-2167, Latvija

Standard(s): LVS EN 60335-2-65:2004 + A1:2008 + A11:2012,
LVS EN 60335-1:2012 + A11:2014 + A13:2018 + A14:2019.

The Certificate of conformity is based on the evaluation of samples of the product. It does not imply an assessment of the production and it does not permit the use of a mark of conformity or of a safety mark of the TÜV NORD Group. This is to certify that the tested sample is in compliance with the essential requirements referred to Low Voltage Directive 2014/35/EU. The holder of this certificate may use this Certificate together with the EU-Declaration of Conformity.

CE The CE marking may be affixed on the product if all relevant and effective Directives are complied with. CE

№ 001323

URZĄD PATENTOWY
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tel.: (+48) 22 579 05 55 | fax: (+48) 22 579 00 01
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SPRAWOZDANIE O STANIE TECHNIKI ZGŁOSZENIA NR P.437471

Klasyfikacja zgłoszenia: A61L 9/20 (2006.01); F24F 3/16 (2006.01); B01D 53/86 (2006.01)

Poszukiwania prowadzone w klasach: A61; F24; B01

Bazy komputerowe, w których prowadzono poszukiwania:
epodoc; espacenet, depatisnet, uprp

Kategoria dokumentu	Dokumenty – z podaną identyfikacją	Odniesienie do zastrz.
A	PL P.381935 ŚLIWIŃSKA RENATA, BOGDAN 2008-09-15	1-31
A	KR20190022284 A PUREECOTECH CO LTD 2019-03-06	1-31

☐ Dalszy ciąg wykazu dokumentów na następnej stronie

A – dokument określający ogólny stan techniki, który nie jest uważany za posiadający szczególne znaczenie,
E – dokument stanowiący wcześniejsze zgłoszenie lub patent, ale opublikowany w lub po dacie zgłoszenia,
L – dokument, który może poddawać w wątpliwość zastrzegane pierwszeństwo(-wa), lub przytoczony w celu ustalenia daty publikacji innego cytowanego dokumentu lub z innego szczególnego powodu,
O – dokument odnoszący się do ujawnienia ustnego przez zastosowanie, wystawienie lub ujawnienie w inny sposób,
P – dokument opublikowany przed datą zgłoszenia, ale później niż zastrzegana data pierwszeństwa,
T – dokument późniejszy, opublikowany po dacie zgłoszenia lub w dacie pierwszeństwa i niebędący w konflikcie ze zgłoszeniem, ale cytowany w celu zrozumienia zasad lub teorii leżących u podstaw wynalazku,
X – dokument o szczególnym znaczeniu; zastrzegany wynalazek nie może być uważany za nowy lub nie może być uważany za posiadający poziom wynalazczy, jeżeli ten dokument brany jest pod uwagę samodzielnie,
Y – dokument o szczególnym znaczeniu; zastrzegany wynalazek nie może być uważany za posiadający poziom wynalazczy, jeżeli ten dokument zostanie połączony z jednym lub kilkoma tego typu dokumentami, a takie połączenie będzie oczywiste dla znawcy,
& – dokument należący do tej samej rodziny patentowej.

Sprawozdanie wykonał/-a: Maciej Klebba data 30.12.2021r.

/-podpisano kwalifikowanym podpisem elektronicznym-/
Pismo wydane w formie dokumentu elektronicznego

Uwagi do zgłoszenia

Sprawozdanie zostało wykonane w oparciu o wersję zastrzeżeń patentowych z 2021-03-31

URZĄD PATENTOWY
RZECZYPOSPOLITEJ POLSKIEJ

DOKUMENT PATENTOWY

Na podstawie przepisów ustawy z dnia 30 czerwca 2000 r. Prawo własności przemysłowej (Dz. U. z 2023 r. poz. 1170) został udzielony na rzecz:

EXEL AIR TECH SPÓŁKA Z OGRANICZONĄ ODPOWIEDZIALNOŚCIĄ, Kajetany, Polska

PATENT

NR **245400**

NA WYNALAZEK PT.

Przepływowy oczyszczacz powietrza

przedstawiony w opisie patentowym włączonym do niniejszego dokumentu

Patent trwa od dnia: **2021-03-31**

Warszawa, dnia 2024-07-16

Z upoważnienia Prezesa Urzędu Patentowego
Starszy Specjalista
mgr Monika Russek

Thank you for your attention!

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