The AirMonTech database

Luca Spano and Annette Borowiak
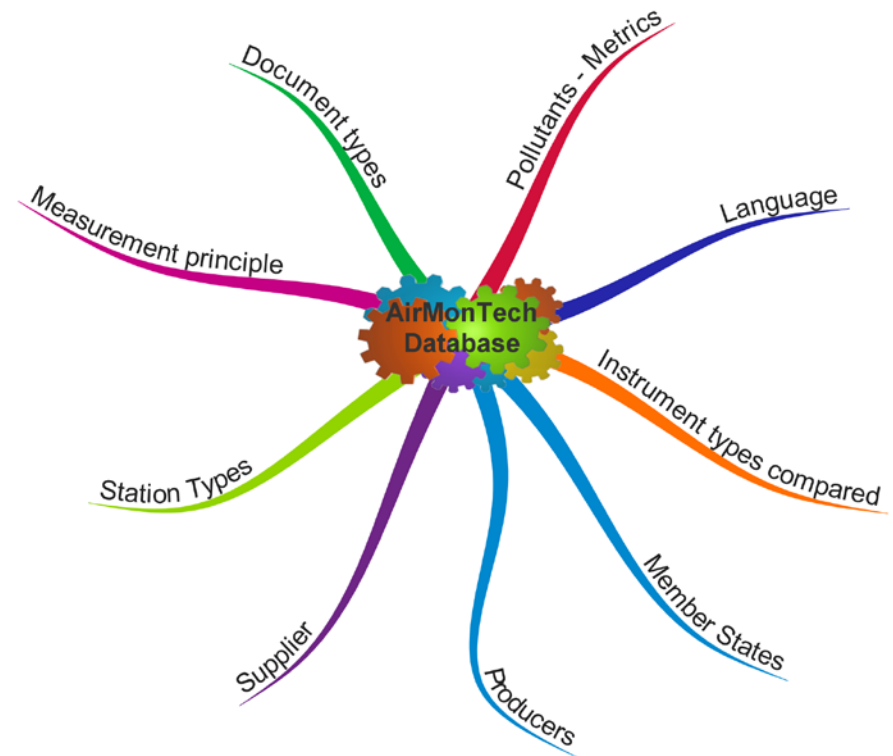
Joint Research Centre
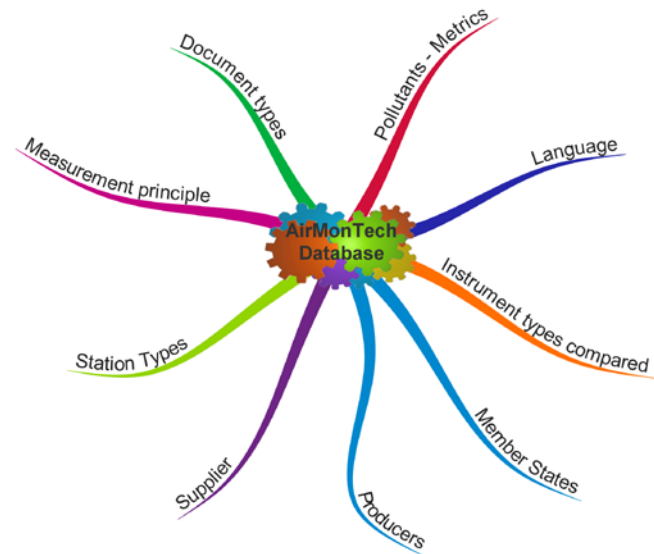

http://db-airmontech.jrc.ec.europa.eu
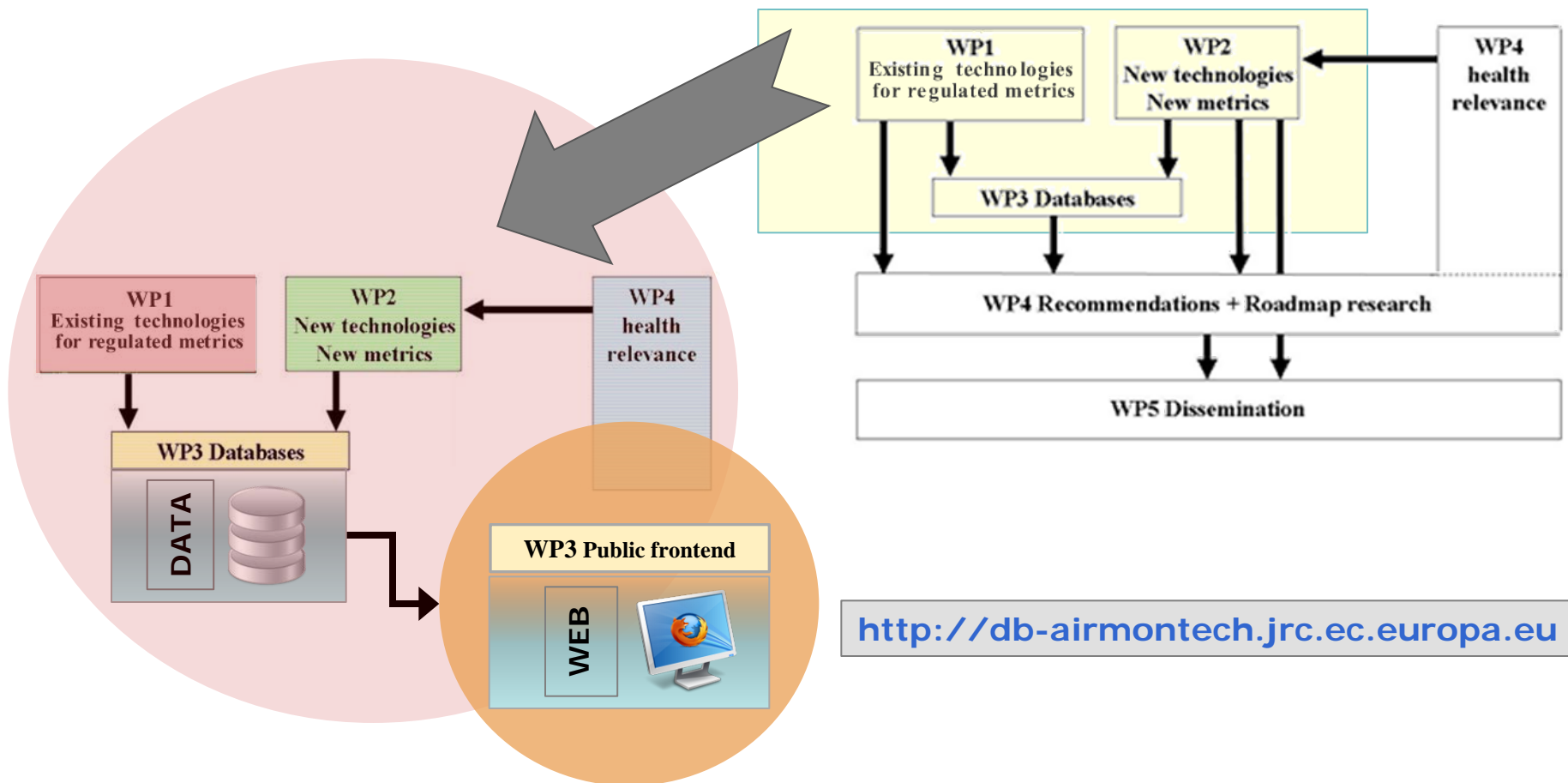
Topics of the presentation

- Database overview

- How data are stored in the database

- Database roles

- Searching the database

- Statistics

Database overview

Data collection process
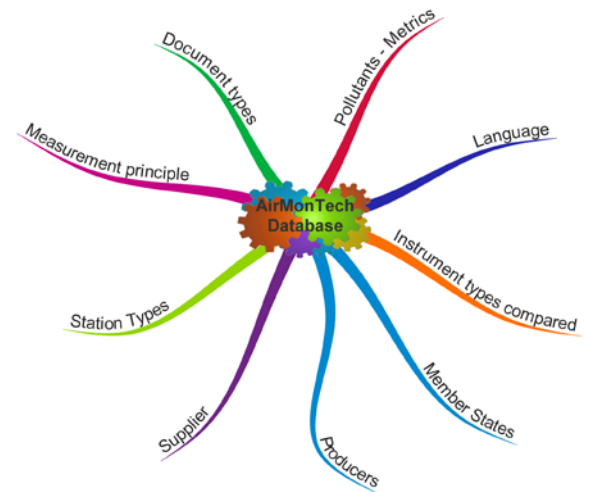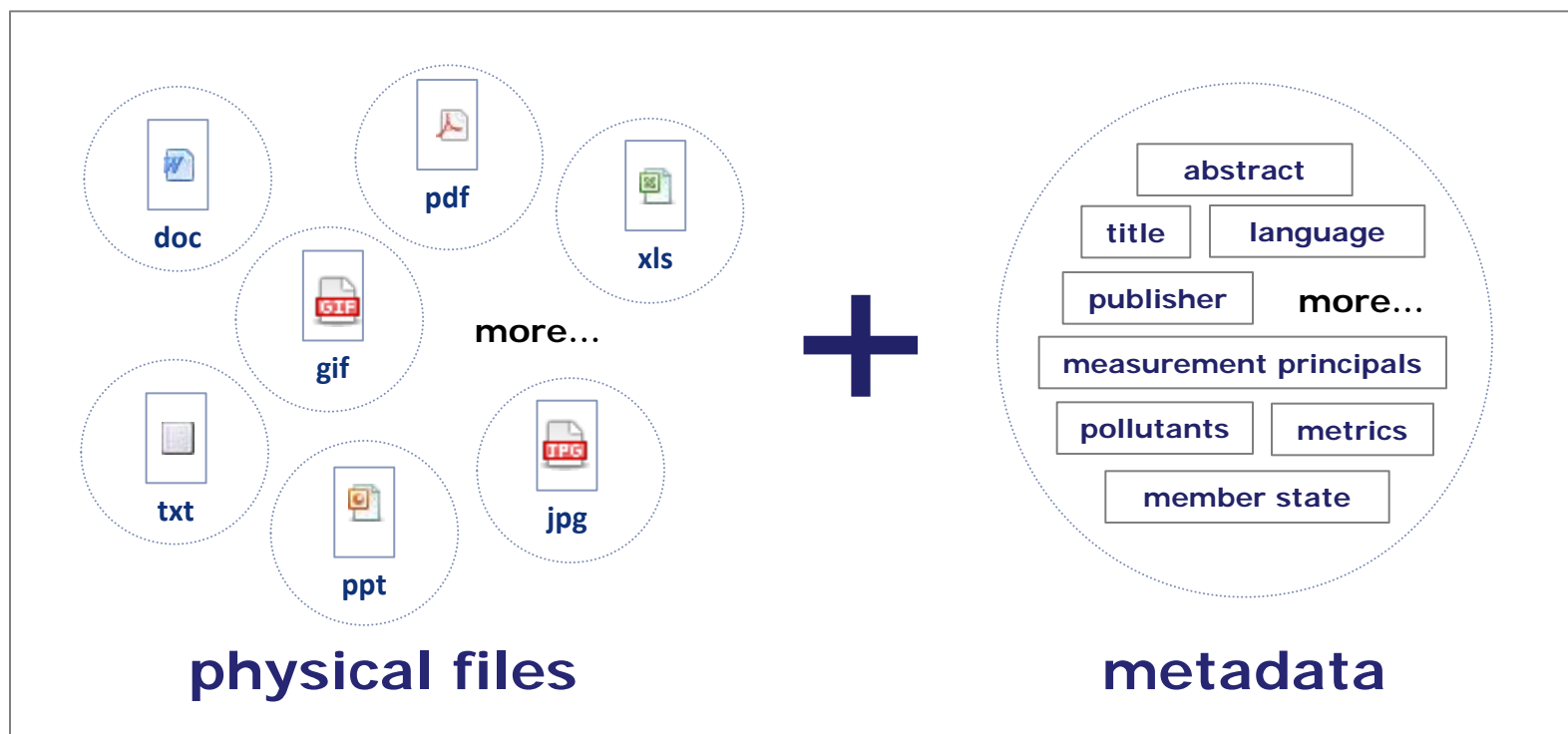

http://db-airmontech.jrc.ec.europa.eu

AirMonTech database: three steps
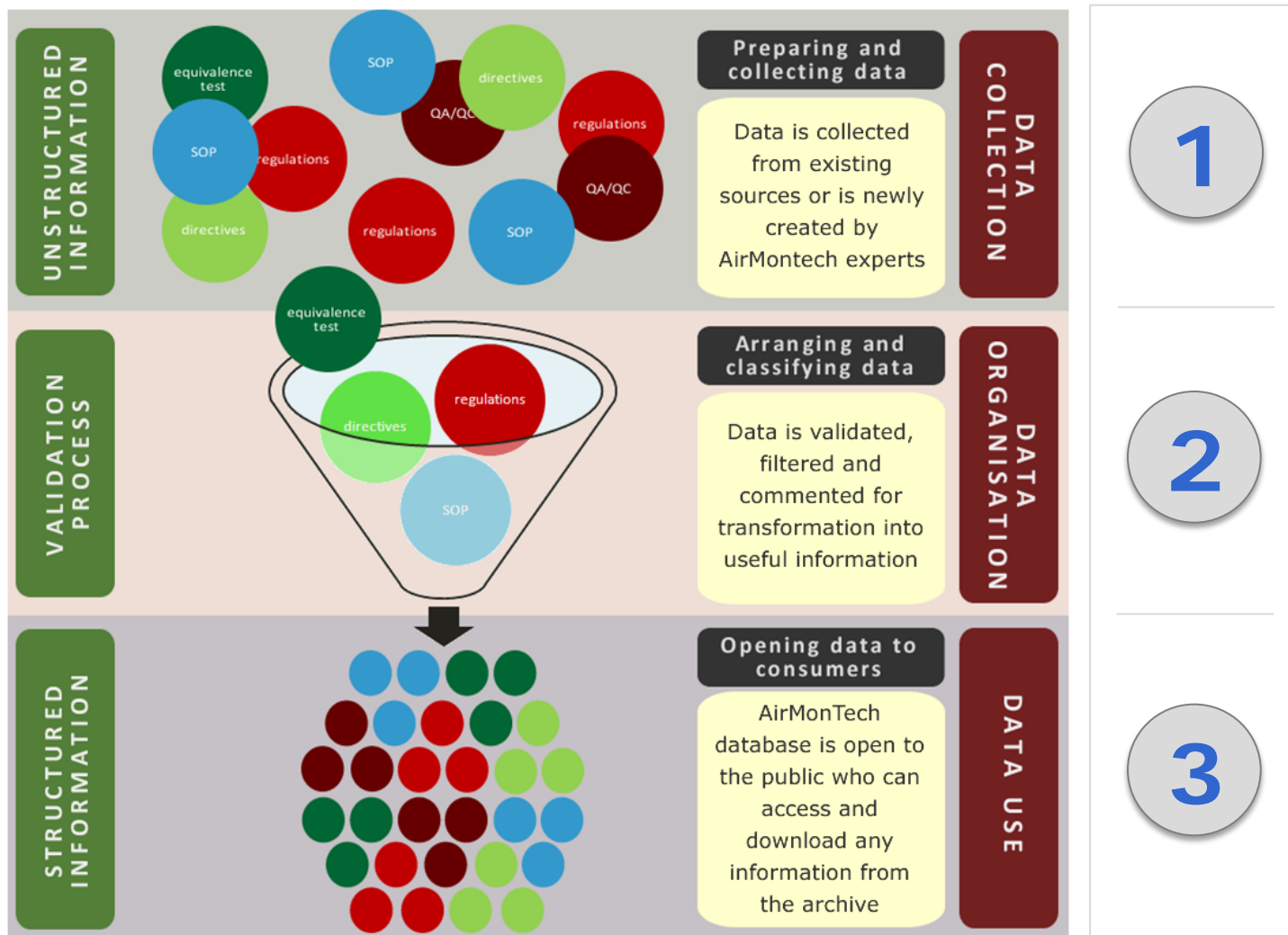
How data are stored in the database

AirMonTech document

physical files + metadata

[1 physical file] + [1 or more meta tags] = AirMonTech document

19 different document types

- ✓ Application sheets — AS
- ✓ Directives and regulations — DR
- ✓ Full Equivalency test report — EFR
- ✓ Instrument brochures — IB
- ✓ Instrument inter-comparison raw data — IIRD
- ✓ Instrument inter-comparison reports — IIR
- ✓ Instrument manuals — IM
- ✓ Instrument specification sheets — IS
- ✓ Metric background information — MBI
- ✓ Metric measurement technologies overview — MMTO
- ✓ Metric measurement technology information — MMTI
- ✓ Other official reports — OR
- ✓ Partial Equivalency test report — EPR
- ✓ Presentations — P
- ✓ Round-robin-test reports — RRTR
- ✓ Specification sheets — SS
- ✓ Standard operating procedures — SOP
- ✓ Standard operating procedures - Model — SOPM
- ✓ Type approvals — TA

Hosted files

- **Portable documents** (.pdf, .xps)

- **Word processing** (.rtf, .doc, .docx, .odt)

- **Spreadsheets** (.xls, .xlsx, .ods)

- **Images** (.jpeg, .gif, .png)

- **Presentations** (.ppt, .pptx, .otp)

- **ASCII** (.txt)

In case of need other types could be added in the future

Metadata in the AirMonTech database

- **Title** = Measurement of carbon monoxide (CO) [...] **(+∞)**
- **Abstract** = Measurement of carbon monoxide (CO) in the DLI Air Quality Monitoring Network [...] **(+∞)**
- **Document type** = Application Sheets (AS); Standard operating procedures (SOP); Type approvals (TA) [...] **(19)**
- **Supplier** = AirMonTech; External **(2)**
- **Uploader** = Robert Gehrig; Ulrich Quass; Annette Borowiak [...] **(+∞)**
- **Consortium member** = EMPA; IUTA; JRC; [...] **(9)**
- **Pollutants\metrics** CO, O3, SO2, NO, NO2, Nox, Heavy Metals, Pollen, Particle size distribution, VOCs [...] **(37)**
- **Language** = Bulgarian; English; Italian; German; Greek [...] **(24)**
- **Instrument types compared** = Only Manual; Manual + Automated; Only Automated **(3)**
- **Station types** = Industrial hot spot, Regional, Urban background [...] **(6)**
- **Measurement principle** = Aerosol Mass Spectrometry; Beta-Ray Absorption; Fluorescence; Gravimetry [...] **(29)**
- **Member state** = Austria; Bulgaria; Denmark; France; Italy; Slovakia [...] **(28)**
- **Publisher\Producer** =Dublin CC, AnneMarie McCartan; DCMR Milieudienst Rijnmond; VMM Wim Gorissen [...] **(+∞)**
- **Create date** = 12/11/2011 [..] **(+∞)**
- **Update date** = 19/05/2012 [..] **(+∞)**
- **File name** = Hg_vapour_MMTI.pdf; test- OPSIS.xls; EQUIVALENCE-REPORT_Engl.doc [...] **(+∞)**
- **File size** = 118KB [...] **(+∞)**
- **File type** = application/pdf; application/vnd.ms-excel; application/msword [...] **(+∞)**

Example: document AMT8

Main description

- **Title**: Bedieningsvoorschrift vor de SO2-monitor TS43I
- **Abstract**: SOP for the operation of the SO2 monitor TS43i

Tags

- **Type**: Standard operating procedures (SOP)
- **Author**: VMM Wim Gorissen
- **Language**: Dutch
- **Pollutants/Metrics**: SO2
- **Measurement principle**: Fluorescence
- **Member state**: Belgium (BE)
- **Station type**: -
- **Instrument type**: Only Automated
- **Supplied by**: External

Document details

- **Code**: AMT8
- **Created on**: 12/03/2012 09:30
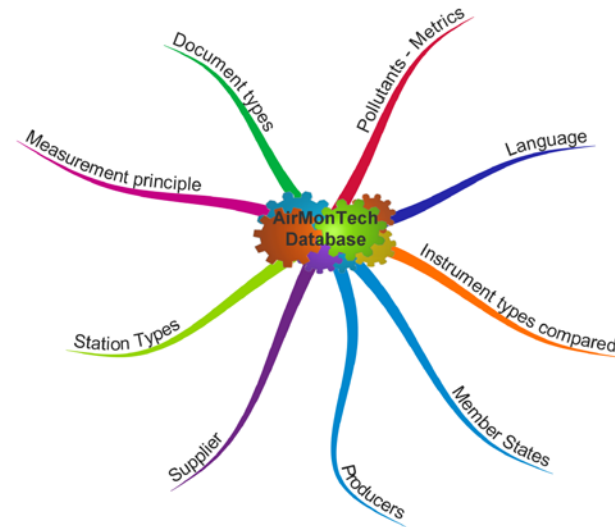- **Updated on**: 10/04/2012 10:03

Uploader

- **Name**: Robert Gehrig
- **Consortium**: EMPA (Swiss Federal Laboratories for Materials Testing and Research)

File details

- **File name**: SO2-B-VMM-BDV530_TS43i_uitgave1.pdf
- **Size**: 396 KB
- **Content type**: application/pdf
- **Last file update**: 10/04/2012 10:03

Filled in by AirMonTech experts

Automatically generated

Database roles

Database roles

Editor

Administrator

Supervisor

Demo/Review

JRC

Administrators manage users, roles and all the technical details of the whole system. An administrator can approve or block users.

Consortium

Editors and **Supervisors** are AirMonTech experts who can upload files and add contents to the database. **Editors** can only manage their own documents; **Supervisors** can control any document in the database

Externals

Demo users are external experts invited to view the contents of the database before documents are published. They can provide feedback to editors and supervisors through a reserved area of the database.
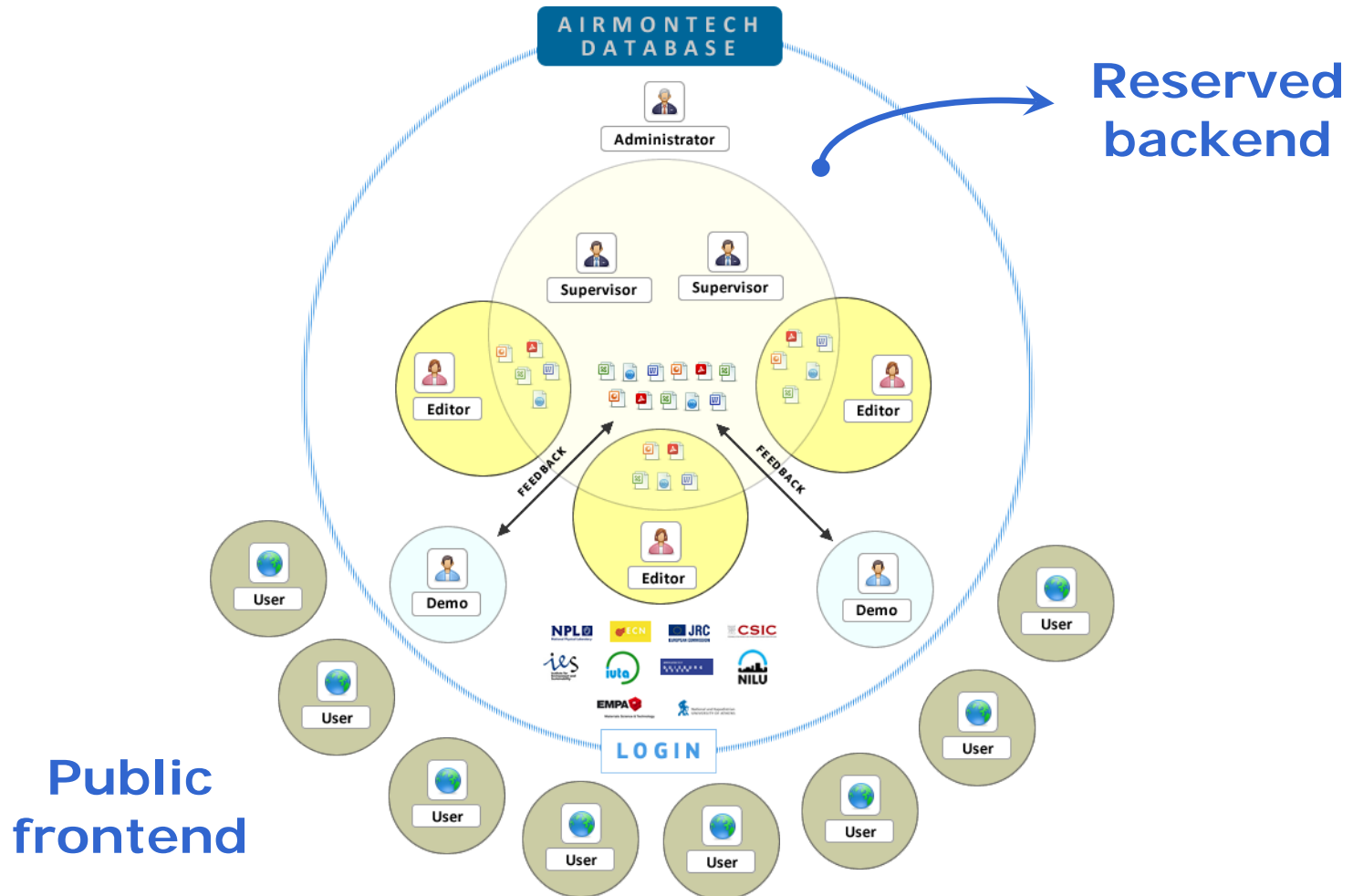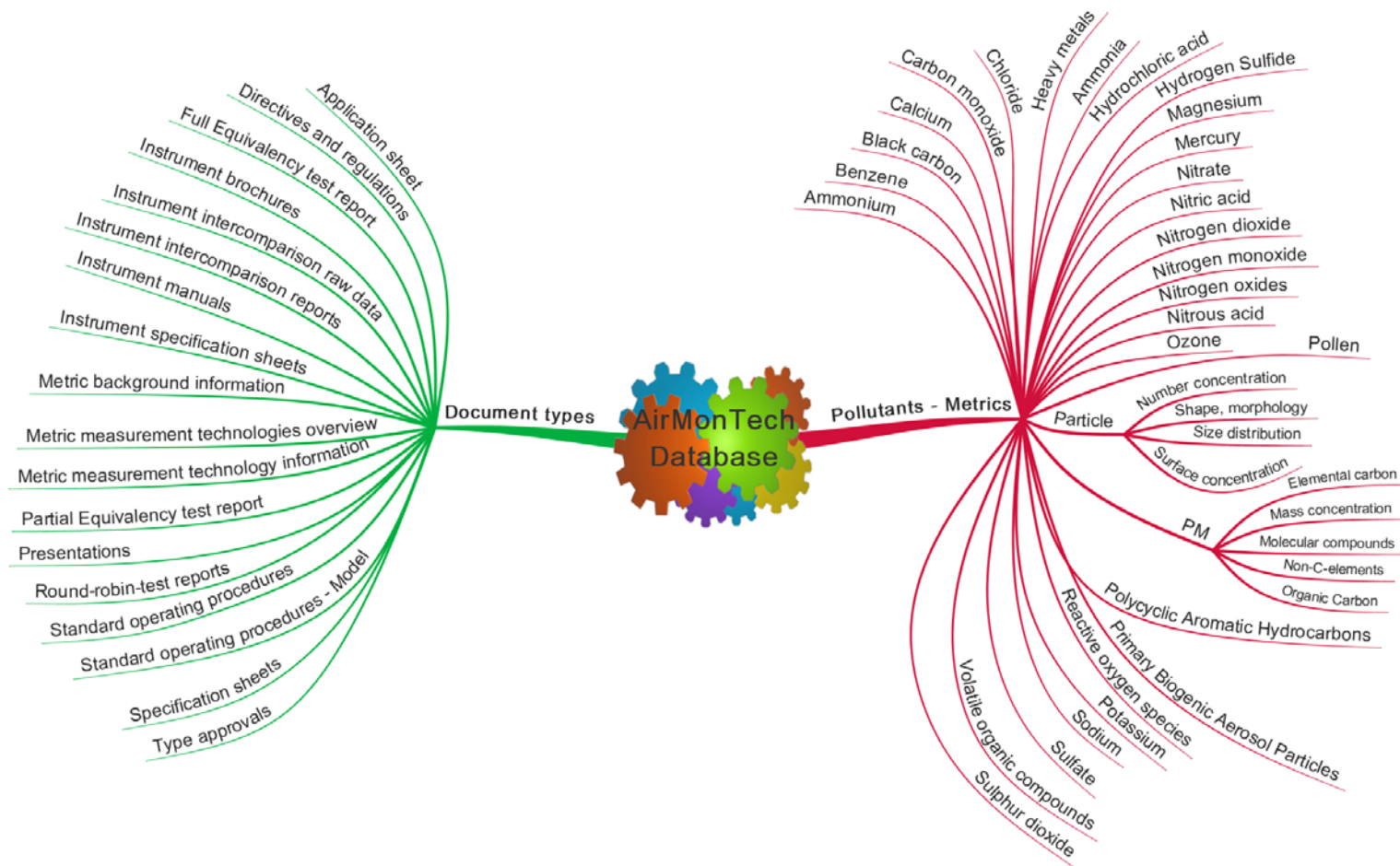
login

Web

Public users
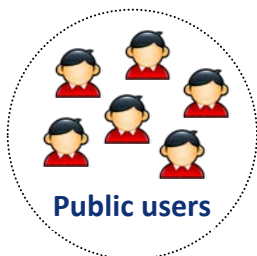
Anybody can access the public frontend of the database and search any document in the database. Furthermore, any file published by editors and supervisors can always be downloaded.
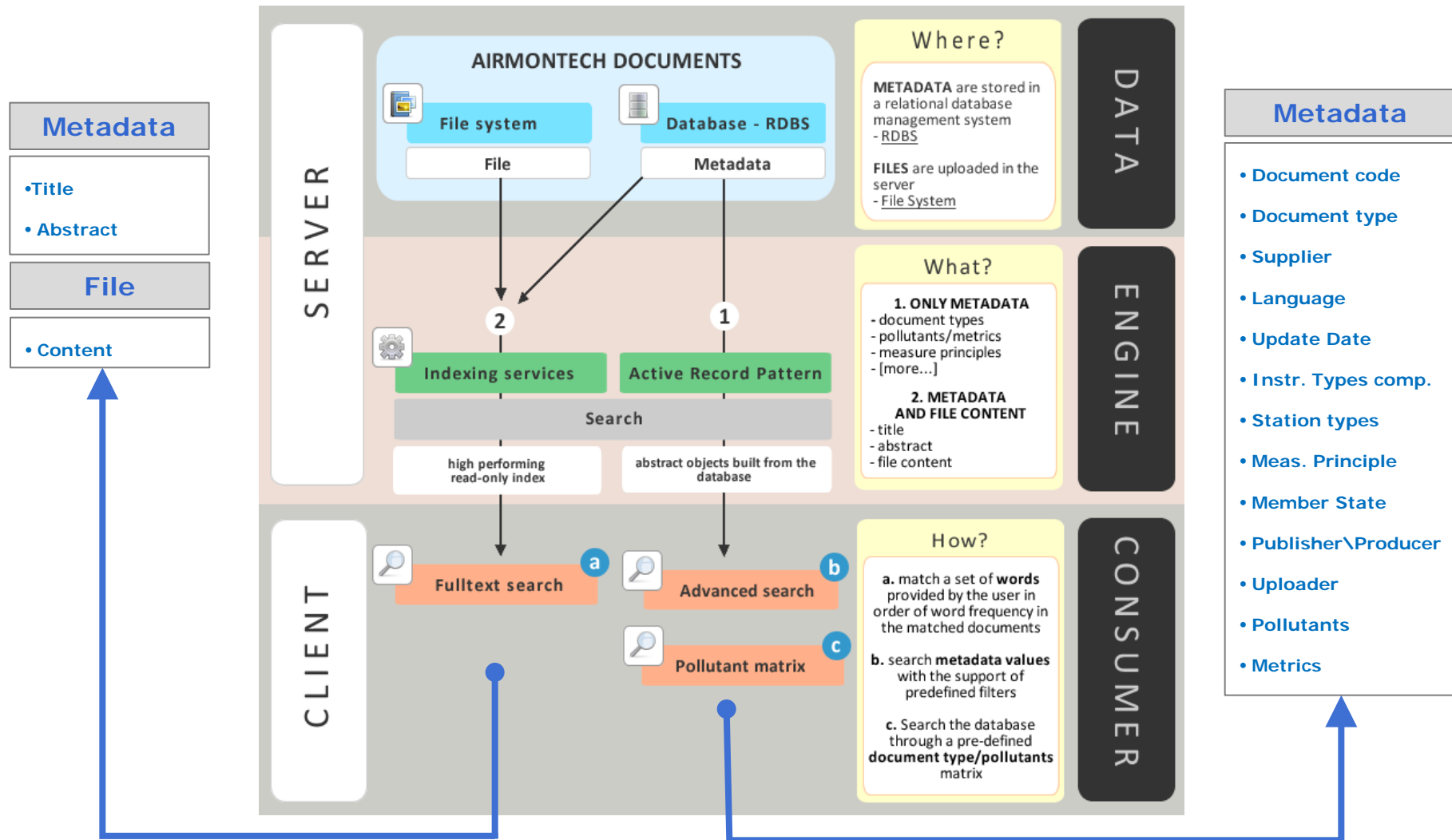
Roles interactions

Reserved backend

Public frontend

Searching the database

AirMonTech search architecture

Full text search

report on the suitability test | Search

Full text - faceted navigation

FACETED NAVIGATION enables users to narrow results from a search, based on their attributes.

NARROWING THE SEARCH RESULTS

1

⊙ Document | Pollutant | Language | Supplier

- Application sheets (1) • Directives and regulations (2) • Full Equivalency test report (6)
- Instrument brochures (13) • Instrument intercomparison raw data (8) • Instrument intercomparison reports (3) • Instrument manuals (1) • Instrument specification sheets (6)
- Metric background information (18) • Metric measurement technologies overview (8) • Metric measurement technology information (35) • Partial Equivalency test report (2) • Presentations (8) • Specification sheets (31) • Standard operating procedures (85) • Standard operating procedures - Model (6) • Type approvals (27)

2

Document | ⊙ Pollutant | Language | Supplier

- Ammonia (1) • Ammonium (1) • Black carbon (1) • Heavy metals (1) • Mercury (1) • Nitrate (1) • Ozone (1) • PM Elemental carbon (2) • PM Mass concentration (1) • PM Non-C-elements (1) • PM Organic Carbon (2) • Particle number concentration (1) • Particle size distribution (1) • Particle surface concentration (1) • Pollen (1) • Polycyclic Aromatic Hydrocarbons (1) • Primary Biogenic Aerosol Particles (1) • Reactive oxygen species (1) • Sulfate (1) • Sulphur dioxide (1)

3

Document | Pollutant | ⊙ Language | Supplier

- Dutch (1) • English (1)

4

Document | Pollutant | Language | ⊙ Supplier

- External (1)

Full text - search details

report on the suitability test | Search

Translation of the report on the suitability test of the multi-component air measuring system airpointer

Language: **English** | Supplier: **External** | Code: **AMT184** | more details...

Document type: Type approvals (TA)

Pollutants: CO, O3, SO2, NOx, NO, NO2

airpointer_tuev_test_report_short_engl_0509.pdf (2330 KB)

Search details

METADATA added by AirMonTech experts are searched

Title: Translation of **the report on the suitability test** of the airpointer...

Matching words are highlighted

Abstract: Translation of **the report on the suitability test** of **the** multi-component air measuring system airpointer of **the** company recordum Messtechnik GmbH for **the** components NO, NO2, NOx, SO2, O3 and CO...

contents of the UPLOADED FILES are searched

Content: ENERGIESYSTEME GMBH Akkreditiertes Prüfinstitut DAP-PL-3856.99 Translation of **the report** on **the** **suitability test** of **the** multi-component air measuring system airpointer of **the** company recordum Messtechnik...

TÜV Rheinland Immissionsschutz und Energiesysteme GmbH
Luftreinhaltung

Translation of the report on the suitability test of the multi-component air measuring system airpointer of the company recordum Messtechnik GmbH for the components NO, NO2, NOx, SO2, O3 and CO,
Report No.: 936/21209700/A

A short abstract where the matching words are found is automatically retrieved from the content of the uploaded file

Advanced search

values

tags

Search by: Document category | Specification sheets (SS)

Filters: Gas | Ammonia (NH3)

Full-text Search | Search

SEARCH FORM

Document category: Specification sheets (SS)

Gas: Ammonia (NH3)

SEARCH DETAILS

Thermo Scientific Model 17i Ammonia Analyzer

Language: English | Supplier: External | Code: AMT206 | more details...

Document type: Specification sheets (SS)

Pollutants: NOx, NO, NO2, NH3

Thermo-Henk-Ole-NH3-NOx monitor_17i_Datasheet_1010.pdf (136 KB)

DOC. DETAILS

Advanced search – main filters

Document types	Main Filters	
ALL DOCUMENT TYPES	Gas	
	Language	
	Particulate Matter	Always available
	Pollutants\Metrics	
	Supplied By	
	Upload Date	
	Uploader Name	

Advanced search- extra filters

Application sheets (AS)	Instrument Types Compared
	Measurement Principle
	Producer
Full Equivalency test report (EFR)	Member State
	Producer
	Station Type
Instrument brochures (IB)	Instrument Types Compared
	Measurement Principle
Instrument intercomparison raw data (IIRD)	Instrument Types Compared
	Producer
	Station Type
Instrument intercomparison reports (IIR)	Instrument Types Compared
	Producer
	Station Type
Instrument manuals (IM)	Measurement Principle
	Producer
Instrument specification sheets (IS)	Instrument Types Compared
	Measurement Principle
Metric measurement technology information (MMTI)	Measurement Principle
Other official reports (OR)	Member State

Other official reports (OR)	Member State
	Producer
Partial Equivalency test report (EPR)	Member State
	Producer
	Station Type
Presentations (P)	Measurement Principle
	Producer
Round-robin-test reports (RRTR)	Instrument Types Compared
	Producer
	Station Type
Specification sheets (SS)	Measurement Principle
	Producer
Standard operating procedures (SOP)	Instrument Types Compared
	Measurement Principle
	Member State
	Producer
Standard operating procedures - Model (SOPM)	Producer
Type approvals (TA)	Instrument Types Compared
	Measurement Principle
	Member State
	Producer

Pollutant matrix

Slider is used to scroll document types

By clicking any document type, all related documents are retrieved

2

284 documents are available in the database classified on a basis of **37** pollutants/metrics and **19** different types.

Document type

Pollutant/Metrics	AS	DR	EFR	EPR	IB	IIR	IIRD	IM	IS
Ammonia (3)	0	0	0	0	0	0	0	0	0
Ammonium (5)	0	1	0	0	0	0	0	0	0
Benzene (18)	0	0	0	0	1	0	0	1	2
Black carbon (9)	0	0	0	0	1	0	0	0	0
Calcium (1)	0	1	0	0	0	0	0	0	0
Carbon monoxide (34)	0	1	0	0	2	0	0	0	0
Chloride (1)	0	1	0	0	0	0	0	0	0
Heavy metals (15)	0	1	0	0	0	3	0	0	0
Hydrochloric acid (0)	0	0	0	0	0	0	0	0	0
Hydrogen Sulfide (1)	0	0	0	0	0	0	0	0	0
Magnesium (1)	0	1	0	0	0	0	0	0	0
Mercury (4)	0	1	0	0	0	0	0	0	0
Nitrate (5)	0	1	0	0	0	0	0	0	0

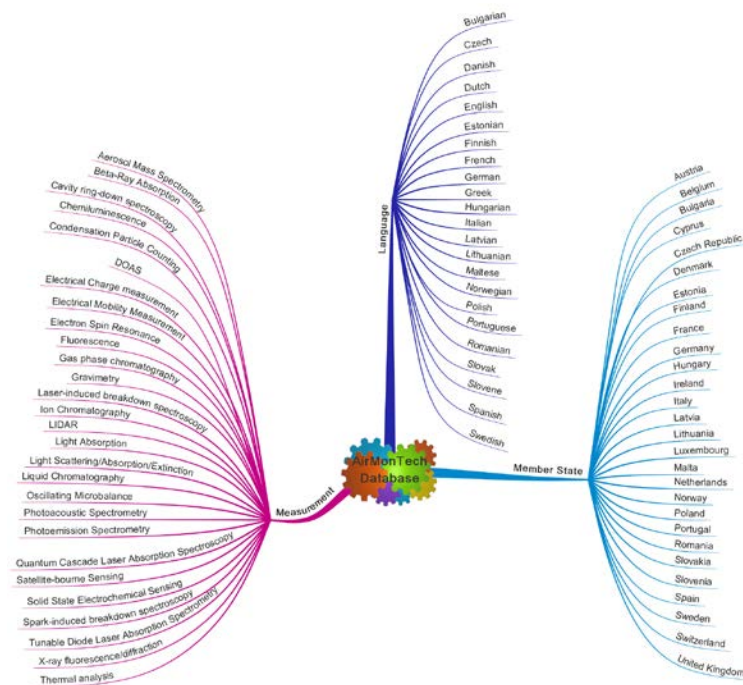By clicking any POLLUTANT/METRICS, all related documents are retrieved

3

3 "INSTRUMENT INTERCOMPARISON REPORT"s related to "HEAVY METALS"

1

Statistics

Document types

Document type	Acronym	Tot.
Application sheets	AS	1
Directives and regulations	DR	2
Full Equivalency test report	EFR	7
Instrument brochures	IB	20
Instrument intercomparison raw data	IIRD	8
Instrument intercomparison reports	IIR	5
Instrument manuals	IM	2
Instrument specification sheets	IS	6
Metric background information	MBI	22
Metric measurement technologies overview	MMTO	19
Metric measurement technology information	MMTI	45
Other official reports	OR	4
Partial Equivalency test report	EPR	2
Presentations	P	9
Round-robin-test reports	RRTR	0
Specification sheets	SS	33
Standard operating procedures	SOP	98
Standard operating procedures - Model	SOPM	7
Type approvals	TA	29
		319

Pollutants/Metrics

Pollutant/Metric		Tot. occ.
Ammonia	NH3	5
Ammonium	NH4+	6
Benzene	C6H6	21
Black carbon	BC	10
Calcium	Ca2+	2
Carbon monoxide	CO	37
Chloride	Cl-	2
Heavy metals		15
Hydrochloric acid	HCl	1
Hydrogen Sulfide	H2S	3
Magnesium	Mg2+	2
Mercury	Hg	5
Nitrate	NO3-	6
Nitric acid	HNO3	2
Nitrogen dioxide	NO2	47
Nitrogen monoxide	NO	44
Nitrogen oxides	NOx	43
Nitrous acid	HNO2	2

Pollutant/Metric		Tot. occ.
Ozone	O3	36
Particle number concentration		16
Particle shape, morphology		0
Particle size distribution		14
Particle surface concentration		4
PM Elemental carbon	EC	5
PM Mass concentration		104
PM Molecular compounds		3
PM Non-C-elements		15
PM Organic Carbon	OC	5
Pollen		4
Polycyclic Aromatic Hydrocarbons	PAHs	4
Potassium	K+	2
Primary Biogenic Aerosol Particles	PBAP	4
Reactive oxygen species	ROS	3
Sodium	Na+	2
Sulfate	SO4 2-	6
Sulphur dioxide	SO2	42
Volatile organic compounds	VOCs	23

Files language

Language	Tot.
Bulgarian	1
Czech	0
Danish	3
Dutch	25
English	264
Estonian	6
Finnish	0
French	0
German	11
Greek	0
Hungarian	0
Irish	0
Italian	1
Latvian	0
Lithuanian	0
Maltese	0
Norwegian	0
Polish	0
Portuguese	0
Romanian	0
Slovak	0
Slovene	6
Spanish	2
Swedish	0
	319

Member states

Member State	Tot. occ.
Austria	1
Belgium	10
Bulgaria	2
Cyprus	34
Czech Republic	0
Denmark	3
Estonia	6
Finland	1
France	1
Germany	16
Hungary	0
Ireland	21
Italy	1
Latvia	0
Lithuania	0
Luxembourg	0
Malta	0
Netherlands	16
Norway	0
Poland	0
Portugal	0
Romania	0
Slovakia	0
Slovenia	6
Spain	2
Sweden	0
Switzerland	1
United Kingdom	16

... and at the end of the FP7 AirMonTech project?

- JRC continues to host and maintain the database
- Review mechanism needs to be established (e.g. AQUILA Network, ...)
- Resources?

Thank you