NECID

Guidance

Nano

Exposure &

Contextual

Information

Database

Version 1.0 – November 2014

Contents

1 General information

1.1 Introduction

For future research in studying exposure to manufactured nanoparticles, agglomerates and aggregates (NOAA), an occupational exposure database is needed. Developing such a database on an international level will enable and facilitate the future sharing of exposure data on NOAA. For this purpose, a PEROSH group led by IFA and TNO developed the NECID database. It supports the user to fulfill the requirements on information gathering for occupational exposure assessment and provides a general overview of results of exposure measurements against nanomaterial in different exposure situations. The exposure data of different research institutes in different countries will be collected and stored in a harmonized way.

The intended user group comprises research institutes and might be extended to third parties. In the project different user-specific rights and legal agreements for the handling and storage of data and the required IT security are addressed – as they play a critical role for a multinational database and the possibility of data sharing. NECID will provide a sustainable source of information for risk management and the development of occupational exposure benchmark levels/limits.

1.2 Installation of NECID

Account and change of user profile

Before NECID can be used the program should be installed on a computer. The first step is to request for an account at IFA. Then a username and password is provided that should be used to login at http://necid.ifa.dguv.de/, see print screen 1.


Print Screen 1. Login screen for NECID.

After login you get the NECID welcome screen (print screen 2) where on the left on the screen a button can be found to change the user profile. In the middle information is given how to install NECID on your computer.
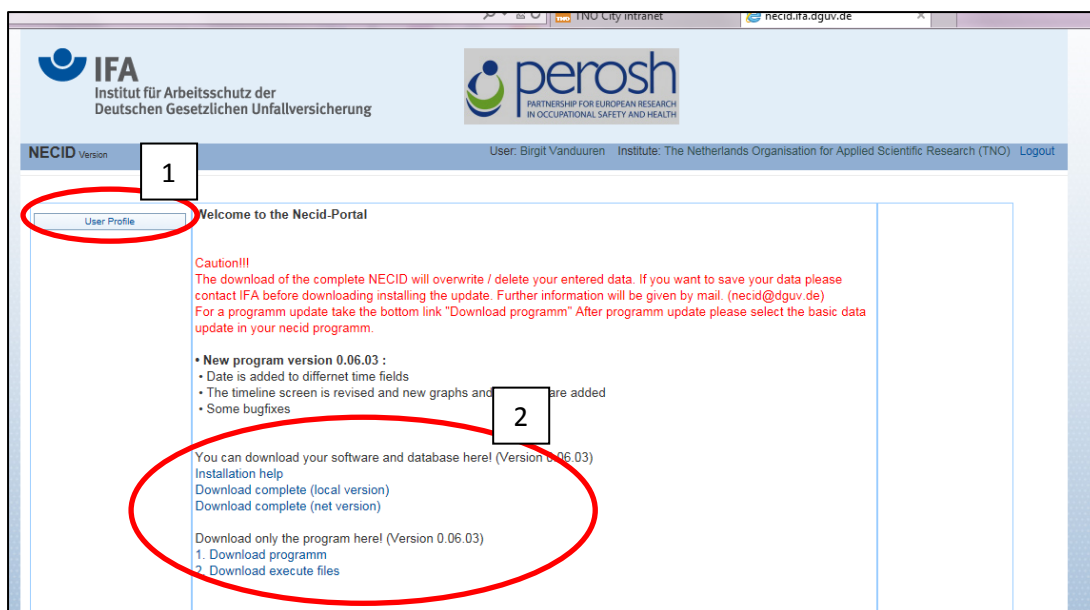
Print screen 2. Welcome page NECID. 1: Button to change the user profile. 2: Overview of documents and files to install NECID on your computer.

Print screen 3 presents the input form for the user profile and possibility to change the user profile, to change the question in case you have forgotten your password and a possibility to get a new password. Before you are able to change the password you should change the fields in the form 'Change Question'(see button 2 in print screen 3).
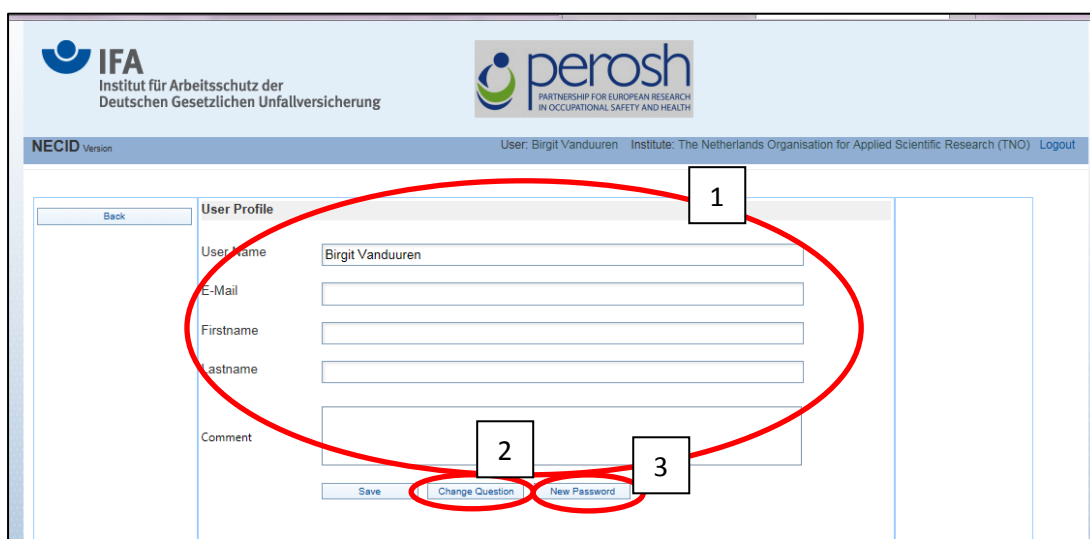
Print screen 3. Input form 'User profile'. 1 Overview of user profile and possibility to change the user profile. 2. The possibility to change the question in case you have forgotten your password . 3. Possibility to get a new password.

The table below (table 1) gives an overview of the fields that could be changed.

Table 1. Fields and their explanations to be filled in for 'User profile'.

Field name	Explanation	Format
User name	Give the user name	Open text field
E-mail	Give the e-mail adres of the user	Open text field

First name	Give users first name	Open text field
Last name	Give users last name	Open text field
Comment	Field to include additional information.	Open text field

! Important. Please save your entered data by clicking on the save icon. Otherwise, data will not be saved.

The sub form 'Change Question' (print screen 4) should be filled before changing your password.

Print screen 4. Subform 'Change question'.

The table below (table 2) gives an overview of the fields that could be changed.

Table 2. Fields and their explanations to be filled in for 'Change question answer'.

Field name	Explanation	Format
Password	Use the password you received with your account	Open text field
Password Question		Not adjustable
Password Answer	Answer the question	Open text field

! Important. Please save your entered data by clicking on the save icon. Otherwise, data will not be saved.

The sub form 'New Password' (print screen 5) should be filled to change your password.

Print screen 5. Sub form 'New Password'.

The table (table 3) below gives an overview of the fields that could be changed.

Table 3. Fields and their explanations to be filled in for 'New password'.

Field name	Explanation	Format
Password Answer	Give the answer you have saved in the sub form 'Change Question'.	Open text field
Password	Give new password	Open text field
Confirm Password	Confirm the new password by including the new password here again.	Open text field

! Important. Please save your entered data by clicking on the save icon. Otherwise, data will not be saved.

User rights

There are two types of user profiles: administrators and users.

Installation of NECID

NECID can be driven under the operating systems MS Windows XP, Windows 7 (32 and 64 bit),Windows 8, Windows Server 2003 – 2008 R2. A guide to install NECID on your computer is given on the NECID website: http://necid.ifa.dguv.de/User/ErsteSeite.aspx .

1.3   Starting NECID

After login you will see the following screen (print screen 6).
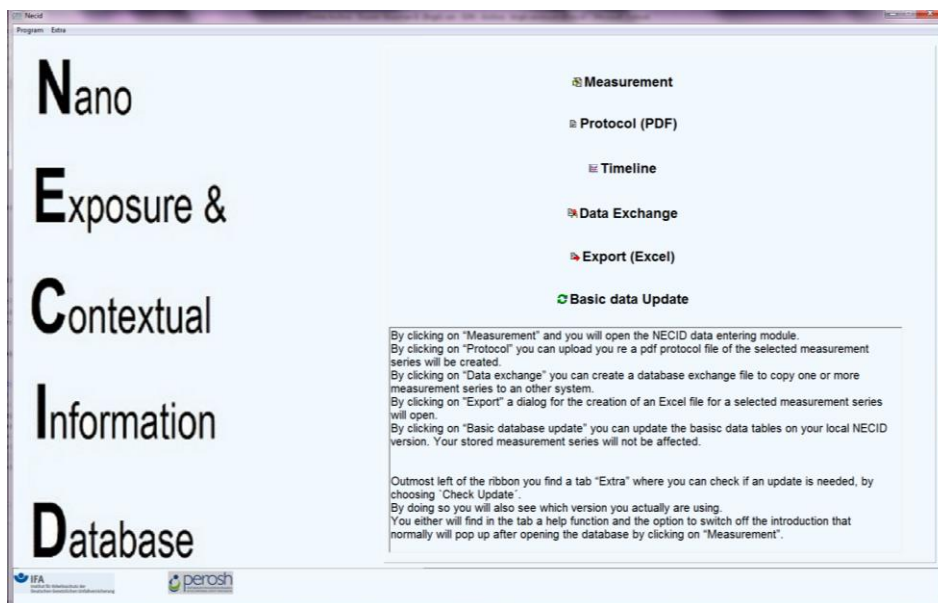
Print screen 6. Overview of NECID after login.

On the right you are able to choose one of the following actions:

- **Measurement:** Inclusion of measurement data in NECID
- **Protocol (PDF)**: Creation of PDF files of included measurement data
- **Timeline**:
- **Data Exchange**: Creation of a database exchange file to copy one or more measurement series to another system
- **Export (Excel)**: Possibility to export data to Excel
- **Basic data Update**: Possibility to update the basic data tables on your local NECID version. Your stored measurement series will not be affected.

On the upper left of the screen you find two tabs: Program and Extra. Clicking on Program gives the opportunity to quit NECID. At the tab Extra you can check if an update is needed, by choosing `Check Update´. By doing so you will see which version you actually are using. Also a help function can be found here.

1.4   Linkage in database

Figure 1 gives an overview of the linkage of information in the NECID database. Different measurements IDs can be linked with one study ID. Subsequently, different premises can be linked with one measurement ID and for each premise information can be linked to one or different locations and workers. Different activities can be linked to different use rates of materials which subsequently can be linked to one or more workers. Finally, the results from different collected samples and time series from different instruments can linked to an activity with a specific use rate.

Risk management measures can be linked to one or more workers. The type of ventilation, used risk management measures and indoor conditions can be linked to one or more locations. Secondary sources can be linked to activities and finally ingredients can be linked to one or more materials.
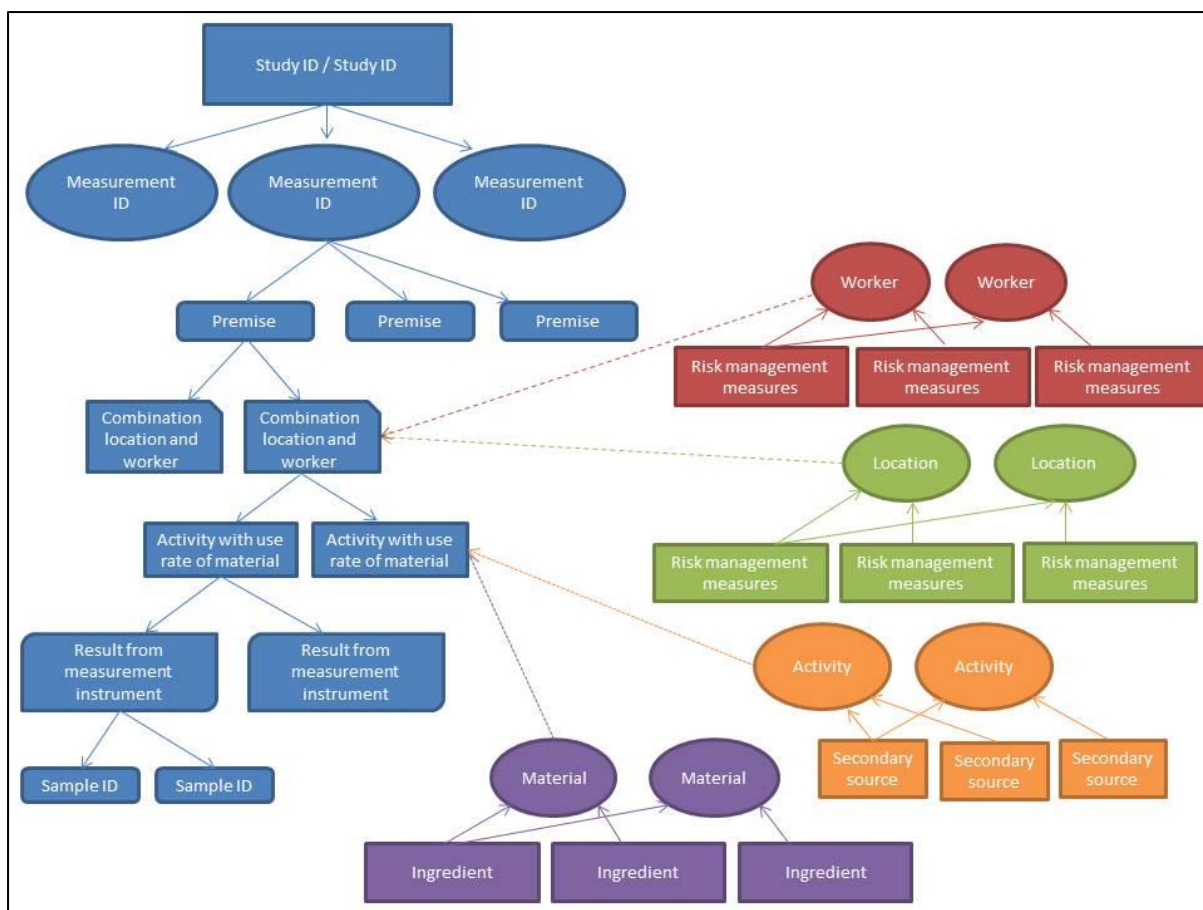
Figure 1. Overview of linkage of information in the NECID database.

1.5 Overview of icons and labeling

In NECID different icons are used. An overview of these icons is given in table 4.

Table 4. Description of the different icons and their function in NECID.

Icon	Function	Description
	New	A new data entry is prepared
	Save	Save the content of the page of the database. If you do not use this button, information might be lost.
	Delete	Delete the selected entry
	Discard	Discards to the last saved point
	Plausibility check	Starts the plausibility check about all fields in the selected measurement series. All required fields without an input will be marked.
	NECID help	Link to the help file
	Upload file	Upload dialog to attach a file under the current caption
	Open a saved file	

		Apply	Apply the changes to the list
		Scroll backwards to the next entry	
		Scroll forwards to the next entry	
		Scroll up or down	Scroll between header entries
		Copy to clipboard	The content of on the selected page is copied to the clipboard
		Paste from clipboard	Paste the last content from the clipboard on the selected page
		Choose activity	Multiple choosing to assign one sample or worker to several activities
		Collapse	
		Expand	
		Plausibility sensed Plausibility is not sensed	
		Not entered	The empty entry has to be filled
		To go to field	
		Add to used material list	
		Apply changes to list	
		List tree open completely	
		Collapse	List tree closed completely
		Search	
		Search below	Find the next hit below in the current search
		Search above	Find the next hit above in the current search
		Check	Possibility to select multiple entries
		The permitted choice	
		Apply	Apply the selected entry
		Close	Leave the window without a change.

The fields in NECID are labeled. The meaning the labeling is:

- Label for a field with normal Font: the input is voluntary.
- Label for a field with **BOLD** Font: the input is compulsory for plausibility check.
- Label for a field with **red BOLD** Font: the input is mandatory for save the data.
- Label for a field which is underlined: With a double click the Help for this field will be shown.

! Important. Please save your entered data by clicking on the save icon at the right ribbon or the check icon at the middle ribbon. Otherwise, data will not be saved.

2   Measurement

2.1   Lay-out input forms

To include data in NECID you have to go to 'Measurement'. After clicking '**Measurement**' you will get the screen 'Measurement series' (print screen 7):
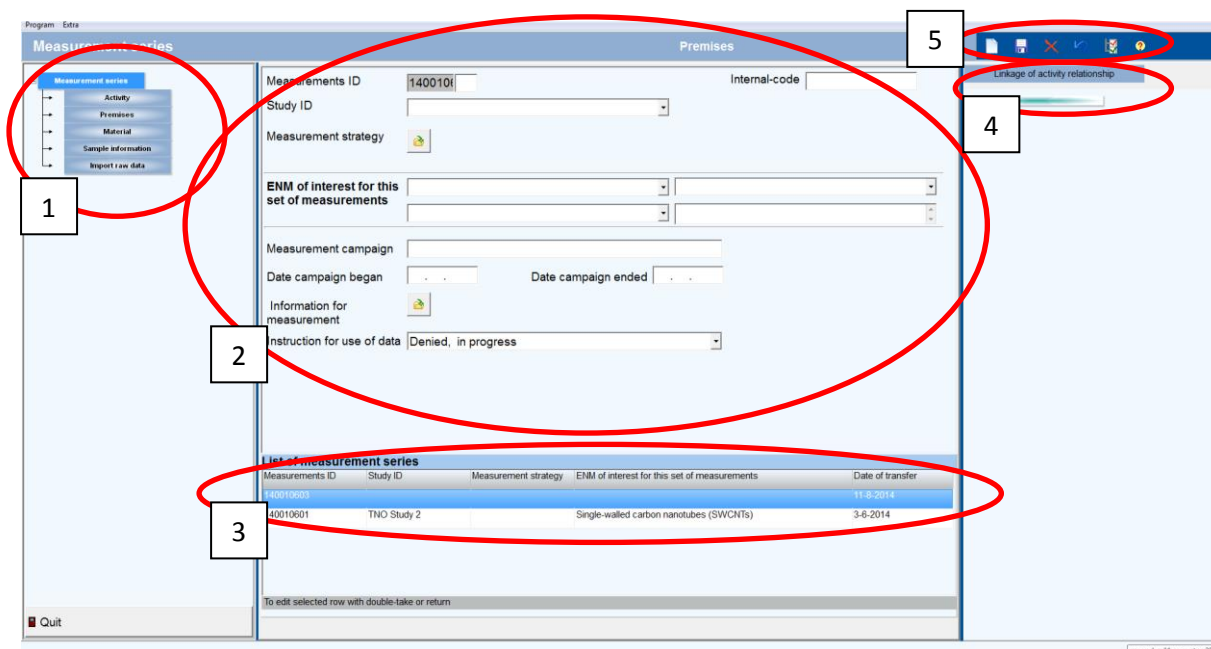
Print screen 7. 1: Sitemap, 2: Fill in form, 3: List of entered measurement series, 4: Linkage of activity relationships, 5: Ribbon.

Each input form has the same lay-out. On top of the screen you find a ribbon on the right. On the left you find the sitemap (by clicking on 'Measurement series' it can be scrolled out of the screen), on the right an overview of the linkage of activity relationships and the fill in form (blank) in the center.

Help function

The help function in NECID can be opened in different ways:

- -   On the right on the ribbon on top of the screen
- -   By clicking F1
- -   Under 'Extra' on the upper left site of the screen.
- -   Also a mouse-over is included for many of the buttons and expressions or abbreviations.

Options on the ribbon

The ribbon on the right can be used to open a new data entry, save or delete data, discards to the last saved point, perform a plausibility check or go to the NECID help.

Sitemap

The sitemap on the right gives an overview of the different input screens. By clicking on the sitemap you can go to the different input screens.

Linkage of activity relationship

The linkage of activity relationship gives an overview of connections to an activity that you have made. By clicking on the activity tree, you can go to the input screens.

Fill in form

In the middle of screen 7 you find the fill in form. New data should be included the fields here.

2.2   Measurement series

To enter new data please click on the "white page" pictogram at the ribbon. Print screen 8 will be opened.

After including all the data in the input fields on the screen 'Measurement' you can start to define all the relevant contextual information of your sampling data, beginning with activity, the premises, the department, the location and task, risk management measures and personal protective equipment and occupational safety skill of the worker present (at the workplace). Finally, information regarding measurement instruments and the results of the measurements should be included.

If your campaign belongs to a research program select a `Study ID´ and load up a `Measurement strategy´ or enter your own measurement strategy. From the grid lists at bottom a set can be opened with a double click.

Print screen 8. Input form 'Measurement'. 1: Ribbon to include new forms, delete forms or save information.

The table (table 5) below gives an overview of the fields that have to be filled in:

Table 5. Fields and their explanations to be filled in for 'Measurement series'.

Field name	Explanation	Format
Measurement ID	Identifier to uniquely identify a set of measurements.	Generated by NECID based on institute and user.
Internal-code	Free field for the linkage to an internal coding / reference number	Included by user
Study ID	Definition	
Measurement strategy	Up load the measurement strategy	
ENM of interest for this set of measurements	Select one or more nanomaterials form the OECD list	Drop-down menu and free text field
Measurement campaign	Give a name for the measurement campaign. This is for your own use.	Open text field
Date campaign began	Give the date of the start of the campaign	Format (DD.MM.YYYY)
Date campaign ended	Give the date of the end of the campaign	Format (DD.MM.YYYY)
Information for measurement	File load up for additional documents or important information for measurement interpretation.	Download
Instruction for use of data	Give approval to whom is allowed to access and download the data.	Drop-down menu

! Important. Please save your entered data by clicking on the save icon at the right. Otherwise, data will not be saved.

2.2.1   Activity

Describe the activity or activities that are performed (see print screen 9). Different activities can be during a measurement ID and different measurement IDs can be included in one study. The functions on the ribbon (see print screen 9) can be used to add activities and scroll between the activities. Saved activities are listed below the input fields.

In the input form information to describe the activity or activities should be obtained, e.g. start and stop time, duration, substance used, a detailed description of the activity or activities based on source domain and activity class, distance to source and work pattern.

Please describe the "Work and process" done during the activity and **scroll down** to describe the "Exposure" you could observe during the activity. You can change a known activity by clicking on it in the list beneath the blank.

At the column on the right you can find a list of activities that are linked (take care, it can be scrolled out of the screen). To see the list you have to close the plausibility check.

By double clicking on the activity at the left column you can open a form to fill in secondary sources. This input form needs to be filled in for each activity that was measured within the same measurement series. To enter a new activity please click on the "white page" pictogram at the ribbon.
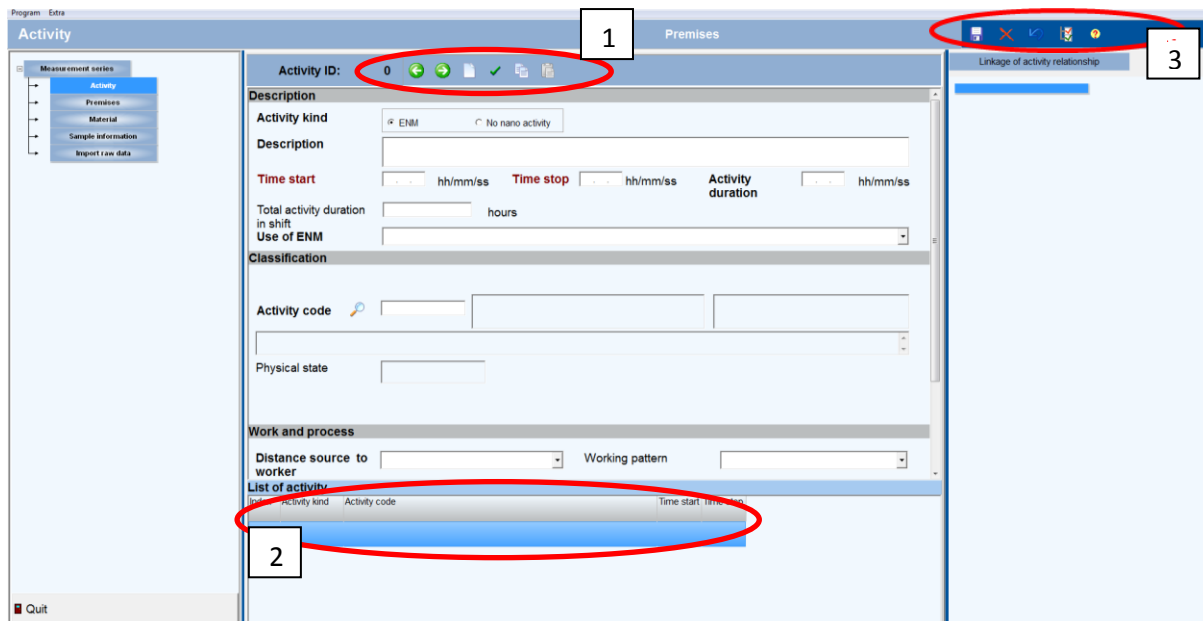
Print screen 9. Input form 'Activity'. 1: Ribbon to scroll between different activities and some other options. 2: Overview of included activities. 3: Ribbon to include new forms, delete forms or save information.

The table below (table 6) gives an overview of the fields that have to be filled in.

Table 6. Fields and their explanations to be filled in for 'Activity'.

Field name	Explanation	Format
Activity kind	Indicate if ENM are handled or a no nano activity is performed	
Description	Give a short description of the activity	Open text field
Time start	Give the time at the start of the activity	Format (hh/mm/ss)
Time stop	Give the time at the end of the activity	Format (hh/mm/ss)
Activity duration	The duration of the activity is automatically generated based of the time start and time stop.	Automatically generated
Total activity duration in shift	Give the total duration of the activity in one shift.	Open text field
Use of ENM	Indicate if the activity is performed on a commercial or non-commercial scale and if the activity is production or down-stream-use of the ENM	Drop-down menu

Activity code	Chose an activity code. By clicking on the magnifier you open a coding list for the activity class. By clicking on the '+' icon you will come to the source domain and at last to the specific activity class. Please be as specific as possible. See print screen 10 for more information.	Drop-down menu. Choosing an activity code will automatically fill some other fields.
Loading type	Only asked for if relevant for activity	Drop-down menu
Drop height	Only asked for if relevant for activity	Drop-down menu
Agitation	Only asked for if relevant for activity. Give the level of agitation: -High: -Median: -Low:	Drop-down menu
Spray technique	Only asked for if relevant for activity. Give the spray technique: -Air-pressurized spraying: -Airless or air-assisted airless spraying: -Techniques with (very) good transfer efficiencies:	Drop-down menu
Spray orientation	Only asked for if relevant for activity	Drop-down menu
Blasting technique	Only asked for if relevant for activity	Drop-down menu
Distance source to worker	Give the distance between the worker and the source of exposure.	Drop-down menu
Automation level	Only asked for if relevant for activity. Give the level of automation: -Remote working: -Automatic: -Semi automatic: -Manual with restriction: -Manual without restriction:	Drop-down menu
Working pattern	Only asked for if relevant for activity. Indicate if the work is performed: Automated: Manually: Discontinuous regular (interruptions): Discontinuous unregular	Drop-down menu

	(interruptions):	
Process temperature	Give the temperature in the room where the activity/process takes place	Open text field (only numbers)
Process temperature	Give the unit in which the temperature is expressed	Drop-down menu
Exposure pattern	Give the exposure pattern: -Continuous: -Intermittent: -Occasional:	Drop-down menu
Exposure situation	Only asked for if relevant for activity. Give the exposure situation: -None: -Normal: -Post positive: -Intended exposure: -Worst case: -Malfunction/incidence: -Testing facility:	Drop-down menu
Remarks	Field to include more information if needed regarding the performed activity.	Open text field

! Important. Please save your entered data by clicking on the save icon at the right. Otherwise, data will not be saved.
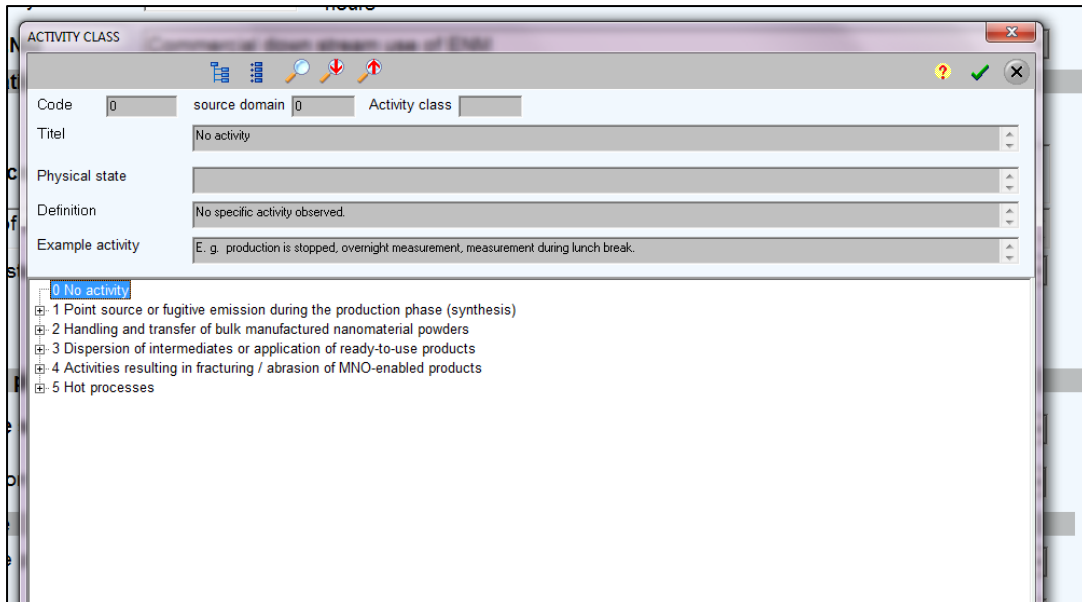
Print screen 10. By clicking on the magnifier behind 'Activity code' in print screen 9 you open a coding list for the different source domains. By clicking on the '+' icon you will come to the more specific activity classes. Please be as specific as possible. After selecting an activity the input fields will be automatically filled.

2.2.1.1 *Second source*

For each described activity, one or more secondary sources of exposure can be described in the form 'Second source'(see print screen 11). Different secondary sources can be described for one study and one or more secondary sources can be linked to one or more of the described activities. The type of source, place of the source and the distance from the source to the measurement devices should be included in the form.

The functions on the ribbon (see print screen 11) can be used to add secondary sources and scroll between the different secondary sources. Saved secondary sources are listed below the input fields for the different activities. Use the upward or downward arrows at the ribbon to select an activity and then on the "white page" pictogram at the ribbon.
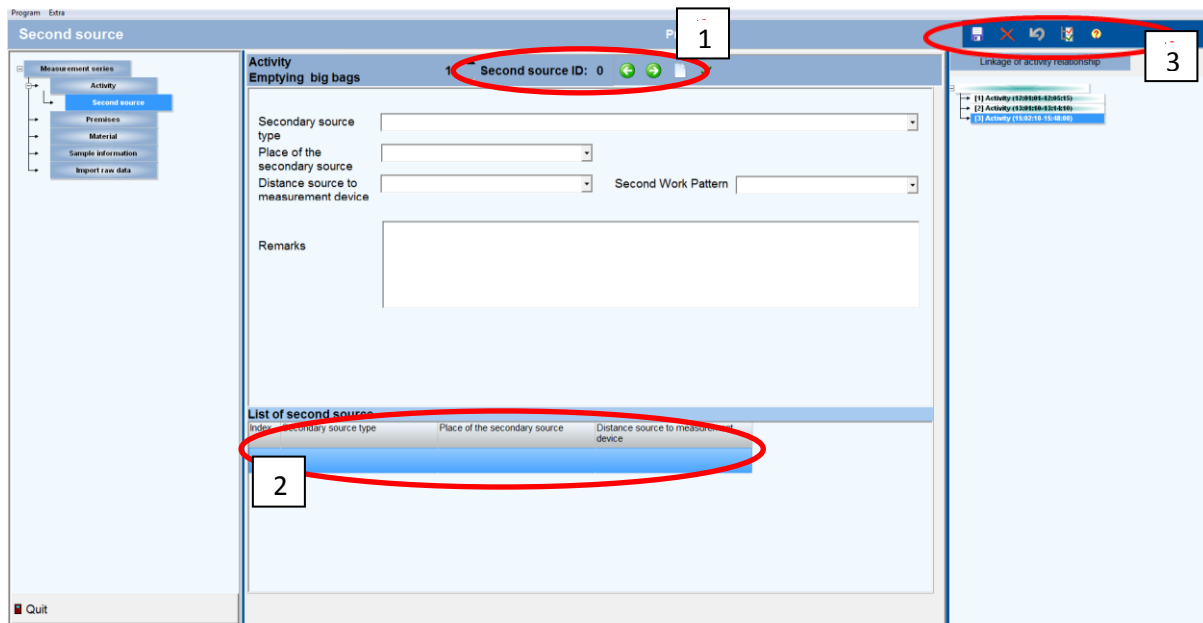
Print screen 11. Input form 'Second source'. 1; Ribbon to scroll between different secondary sources and some other options. 2: Overview of included secondary sources. 3 Ribbon to include new forms, delete forms or save information.

The table below (table 7) gives an overview of the fields that have to be filled in.

Table 7. Fields and their explanations to be filled in for 'Second source'.

Field name	Explanation	Format
Secondary source type	Indicate the type of secondary source: -Machine -Worker -Electro motor (drill machine,..) -Diesel engine (fork lifter, truck,..) -Gas engine (fork lifter, generator,…) -Sprays (spraying, high pressure cleaner, atomize, humidifier,…) -Condensate (solvents,…) -Heater (radiant heater,…) -Metal processing (welding, grinding,….) -Open flame processes -Other hot processes (plastic welding, foil	Drop-down menu

	shrinking, hot air gun,…)	
	-Other activity at the same time with ENM	
	-Other activity at the same time without ENM	
Place of the secondary source	Indicate if the secondary source is: -Inside the workroom -Outside the workroom -Outdoor	Drop-down menu
Distance source to measurement device	Give the distance from the source to the measurement device.	Drop-down menu
Second work pattern	Indicate if the work is performed: -Continuous -Discontinuous regular -Discontinuous irregular -Only manual	Drop-down menu
Remarks	Field to include more information if needed regarding the secondary source in relation to the measurement devices or the performed activity.	Open text field

! Important. Please save your entered data by clicking on the save icon at the right ribbon. Otherwise, data will not be saved.

2.2.2 Premises

For each measurement set the details of one or more premises should be described (see print screen 12).

Information regarding the premises like general information (e.g. name, place, country), premises size and branch code needs to be filled in for each premises where the measurements took place within the same measurement series. To enter a new premises please click on the "white page" pictogram at the ribbon and give the premises an ID number and a name or select a known premises from the list beneath the blank.
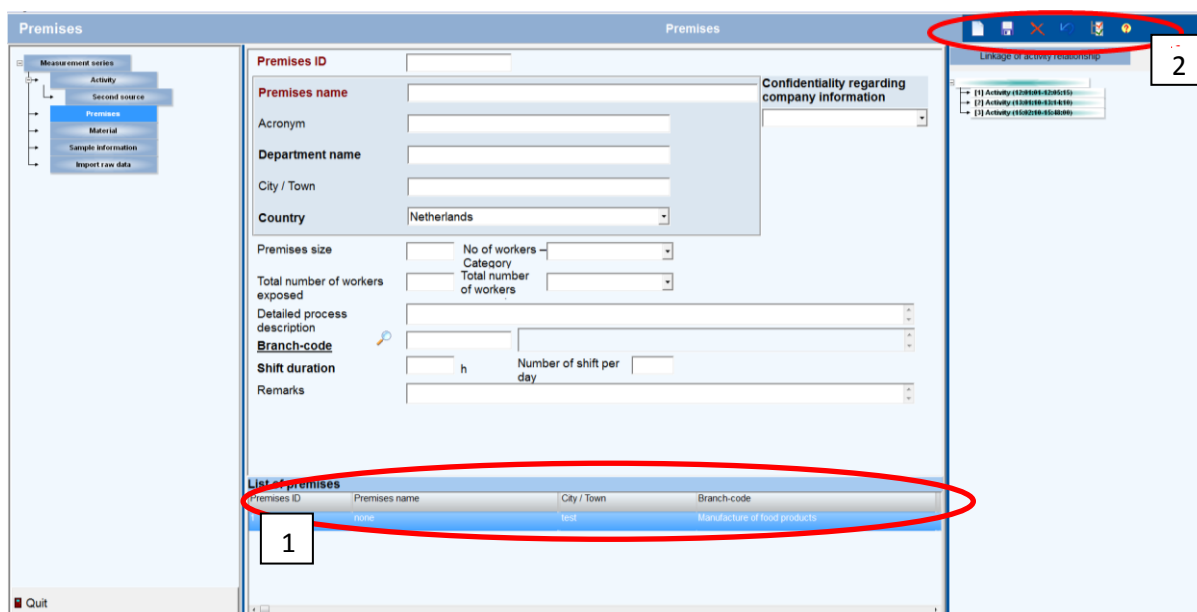
Print screen 12. Input form 'Premises'. 1, Overview of included premises. 2; Ribbon to include new forms, delete forms or save information.

The table below (table 8) gives an overview of the fields that have to be filled in.

Table 8. Fields and their explanations to be filled in for 'Premises'.

Field name	Explanation	Format
Premises ID	Give an ID to the premises	Open text field (only numbers)
Premises name	Give the name of the premises	Open text field
Confidentiality regarding company information	Give approval to whom is allowed to access and download the data.	Drop-down menu
Acronym	Include an acronym for the premises in case of confidentiality issues.	Open text field
Department name	Give a name to the department where the measurements are performed.	Open text field
City/town	Enter the city where the premises is located.	Open text field
Country	Enter the country where the premises is located.	Drop-down menu
Premise size	Number of workers in the premise.	Open text field
No of workers category	This field is automatically filled depending on 'Premises size'	Drop-down menu, or automatically filled
Total number of workers exposed	Give the total number of workers exposed to nanomaterials	Open text field
Total number of workers	This field is automatically filled depending on 'Total number of workers exposed'	Drop-down menu, or automatically filled
Detailed process description	Give an in depth description of the process the measurement is performed.	Open text field
Branch-code	Please enter a branch-code. By clicking on the magnifier you open a coding list of the Industrial Classification system NACE industries. At the beginning you see the several industry divisions. By	Drop-down menu

	clicking on the plus icon you will come to the major group, the industry group and at least to the specific industry. Please be as specific as possible.The NACE – Code is the EU classification of economic activities: http://europa.eu.int/eur-lex/lex/JOHtml.do?uri=OJ:L:2006:393:SOM:EN:HTML. See print screen 13.	
Shift duration	Give the duration of the shift.	Open text field (only numbers)
Number of shift per day	Give the number of shift performed per day.	Open text field (only numbers)
Remarks	Field to include additional information if needed regarding the premise.	Open text field

! Important. Please save your entered data by clicking on the save icon at the right ribbon. Otherwise, data will not be saved.

Print screen 13. By clicking on the magnifier behind 'Branche code' in print screen 12 you open a coding list of the Industrial Classification system NACE industries. At the beginning you see the several industry divisions. By clicking on the plus icon you will come to the major group, the industry group and at least to the specific industry. Please be as specific as possible. The NACE – Code is the EU classification of economic activities: http://europa.eu.int/eur-lex/lex/JOHtml.do?uri=OJ:L:2006:393:SOM:EN:HTML

2.2.2.1 Location
For each premise one or more locations can be described (see print screen 14).

Information about for example the type of the location, room size the number of workers and the general housekeeping should be included for each location where measurements took place. For one premise different locations can be defined simply by clicking on the "white page" pictogram at the ribbon again. To enter a new location please click on the "white page" pictogram at the ribbon and give the location a name or select a known location from the list beneath the blank.
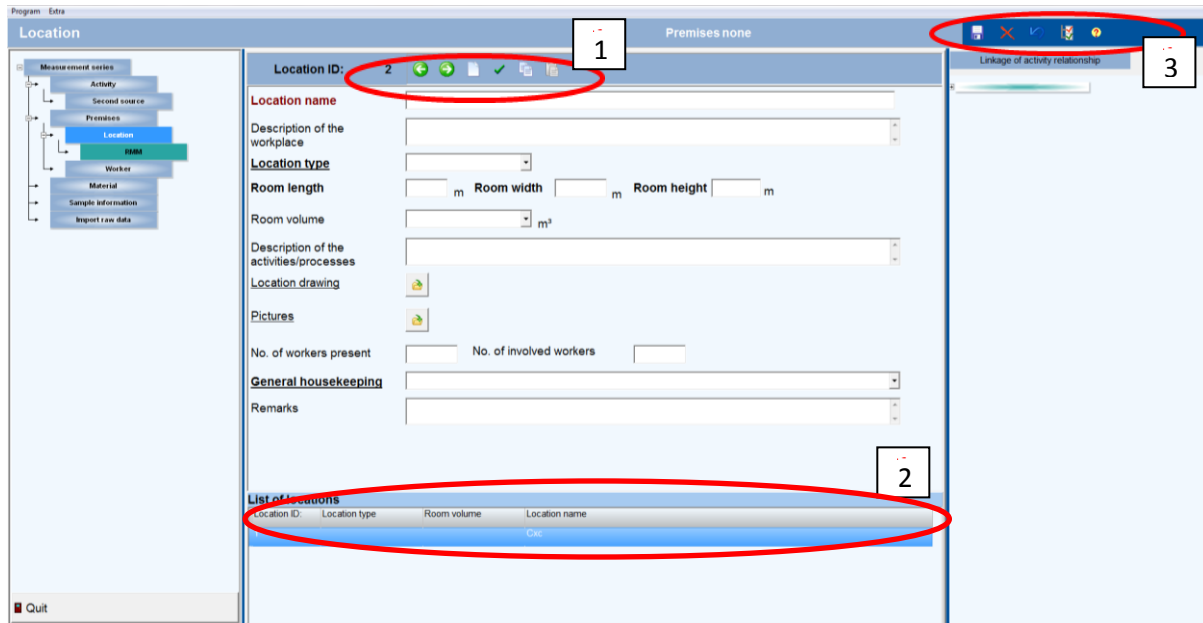
Print screen 14. Input form 'Locations'. 1; Ribbon to scroll between different locations and some other options. 2: Overview of included locations. 3 Ribbon to include new forms, delete forms or save information.
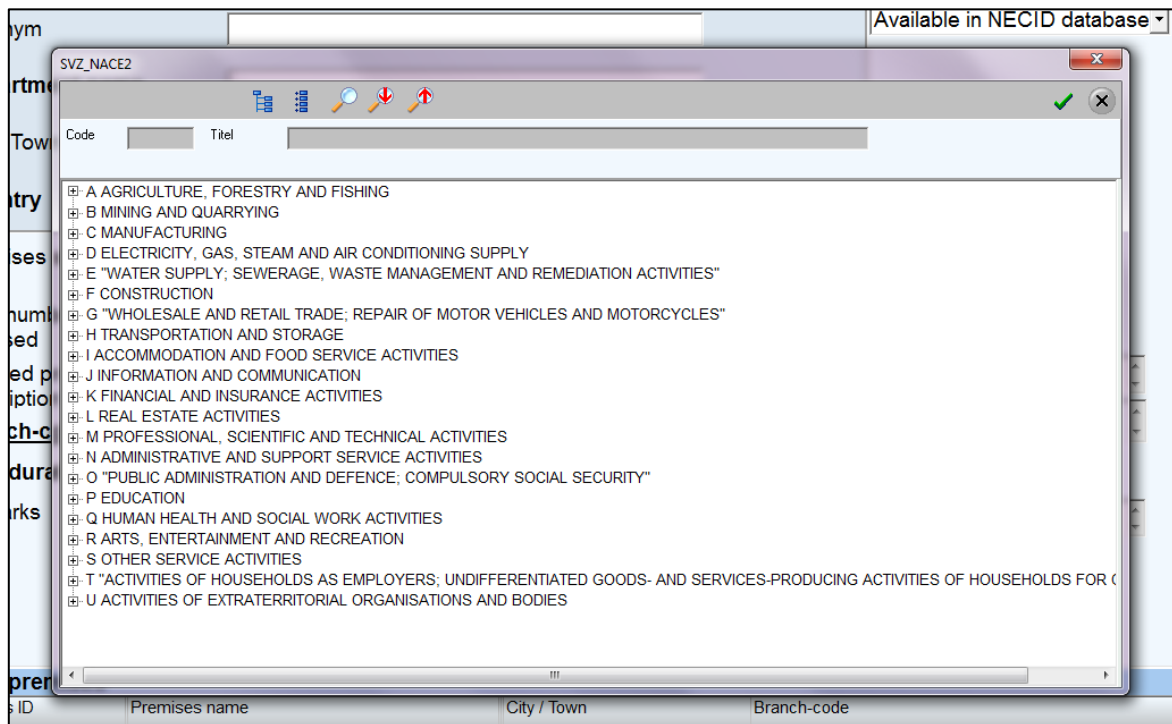
The table below (table 9) gives an overview of the fields that have to be filled in.

Table 9. Fields and their explanations to be filled in for 'Locations'.

Field name	Explanation	Format
Location name	Give a name for the location	Open text field
Description of the workplace	Give a general description of the location and the different activities performed at that location	Open text field
Location type	Indicate if the location is: - Workroom indoor: Both the source and the worker are located indoors. The indoor environment should be enclosed by walls on each side and a roof on top. A cabin or a room should be treated as an indoor environment. -Area indoor: Both the source and the worker are located indoors. The indoor environment should be enclosed by walls on each side and a roof on top. A garage or production hal should be treated as an workroom indoor. -Area outdoor: Both the source and the worker are located outdoors. The	Drop-down menu

	outdoor environment could be enclosed by one or two walls and/or a roof on top. A carport or production hall should be treated as an indoor environment.	
Room length	This field is optional	Open text field (only numbers)
Room width	This field is optional	Open text field (only numbers)
Room height	This field is optional	Open text field (only numbers)
Room volume	This field can automatically be filled based on room length, width and height, a number can be included, or a drop-down menu can be used	Automatically filled, open text field (only numbers) or drop-down menu
Description of the activities/processes	Give an in depth description of the activities or processes that took place during the measurement at this location	Open text field
Location drawing	Here you can (one by one) upload a sketch or drawing of the location including the position of used devices, risk managements measures, position of the worker etc.	Download
Pictures	You can (one by one) upload pictures of the location.	Download
No. of workers present	Indicate the total number of workers present at the location during the measurement	Open text field (only numbers)
No. of involved workers	Indicate the number of workers that were involved in the ENM handling or processing during the measurement	Open text field (only numbers)
General housekeeping	Indicate the level of general housekeeping and especially consider cleaning practices and contamination of surfaces with dust: -Poor: e.g. no specific cleaning or use of non-appropriate methods like pressurized air -Average: -General good housekeeping practices: e.g. daily cleaning using appropriate methods (e.g. vacuum), preventive maintenance of machinery and control measures -Demonstrable and effective housekeeping practices: -Process fully enclosed: The default is set at no specific cleaning practices, process not fully enclosed.	Drop-down menu
Remarks	Field to include any additional remarks or information about location.	Open text field

! Important. Please save your entered data by clicking on the save icon at the right ribbon. Otherwise, data will not be saved.

2.2.2.1.1   RMM

For each location in a premises one or more risk management measures (RMMs) can be described. First select a location (see print screen 15 (button 1)) and subsequently include information regarding the RMMs. RMMs can be linked to one or more activities.

In the input form 'RMM' the opportunity to include an activity is given. The user is then redirected to the input form 'Activity'. To enter a risk management measure (RMM) please click on the "white page" pictogram at the ribbon or select a known RMM from the list beneath the blank. Please define the start time and stop time the RMM were applied.

In the input form there are 3 sub forms that should be completed: Ventilation (print screen 16), Local control (print screen 17) and Indoor condition (print screen 18). Information regarding ventilation, e.g. efficiency rate, number of air changes per hour and level of aggregation should be included in the sub form 'Ventilation'. In the sub form 'Local control' information about the type of control that is used and some details about the control should be included. Finally information like humidity, temperature, air pressure and air velocity can be included in the sub form 'Indoor climate'.
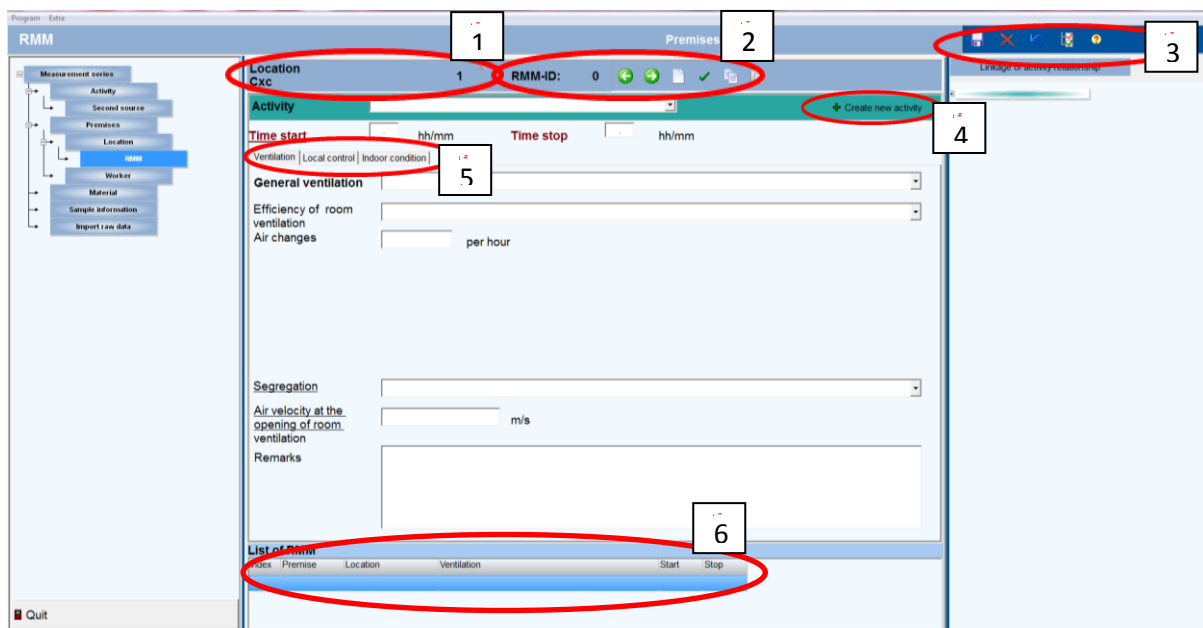
Print screen 15. Input form 'RMM'. 1; Ribbon to scroll between different locations. 2: Ribbon to scroll between different RMMs and some other options. 3 Ribbon to include new forms, delete forms or save information. 4: Possibility to include additional activities. 5: Sub forms 'Ventilation', 'Local control' and 'Indoor condition'. 6: Overview of included RMM.

The table below (table 10) gives an overview of the fields that have to be filled in as general information that is the same for all sub forms.

Table 10. Fields and their explanations to be filled in for 'RMM'.

| Field name	Explanation	Format
Activity	If an additional activity should be included then the user can used button 4 from print screen 15.	Drop-down menu
Time start	This field can automatically be filled based information from the input form 'Activity'. It is possible to change the time manually.	Automatically filled or open text field (only numbers) format (hh/mm)
Time stop	This field can automatically be filled based information from the input form 'Activity'. It is possible to change the time manually.	Automatically filled or open text field (only numbers) format (hh/mm)

! Important. Please save your entered data by clicking on the save icon at the right ribbon. Otherwise, data will not be saved.

Then some specific information is asked for the different sub forms. Print screen 16 presents sub form 'Ventilation'.
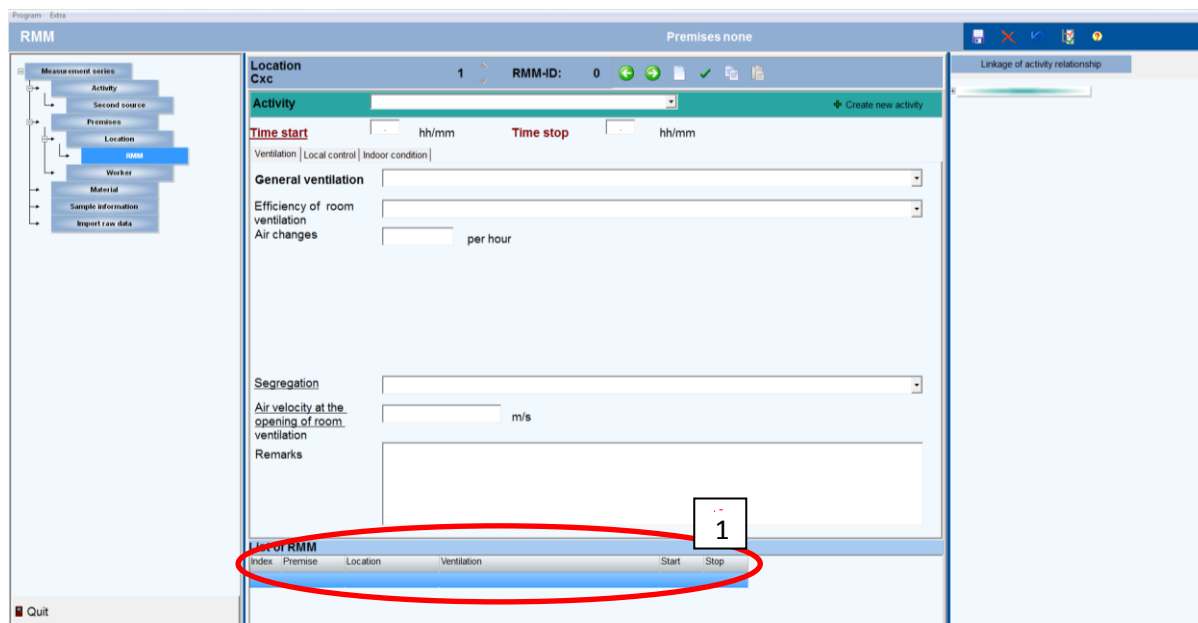
Print screen 16. Sub form RMM – Ventilation. 1: List of RMM.

The table below (table 11) gives an overview of the fields that have to be filled for RMM – sub form 'Ventilation'.

Table 11. Fields and their explanations to be filled in for RMM – sub form 'Ventilation'.

Field name	Explanation	Format
General ventilation	Indicate the type of general ventilation: -none ventilation	Drop-down menu

	-natural ventilation-doors or windows open -natural ventilation-doors or windows closed -natural ventilation-outdoor working -mechanical ventilation-incoming and outgoing air -mechanical ventilation-only incoming air -mechanical ventilation-only outgoing air	
Efficiency of room ventilation	Indicate the level of efficiency: -Poor -Average -High	Drop-down menu
Air changes	Give the number of air changes per hour.	Open text field (only numbers)
Filter	Only asked for if mechanical ventilation is selected. Indicate if a filter is used in the mechanical ventilation system.	Yes / no option
Recirculating air	Only asked for if mechanical ventilation is selected. Indicate if the air is recirculated.	Yes / no option
Filter group	Only asked for if mechanical ventilation is selected and filter selected as 'yes'. Indicate the type of filter: -F=Dust spot efficiency filters -G=Arrestance filters -H=HEPA filters -U=ULPA filters	Drop-down menu
Filter class	Only asked for if mechanical ventilation is selected and filter selected as 'yes'. Indicate the class of filter that is used. The filters that can be selected depends of type of filter selected	Drop-down menu
Segregation	Indicate the level of segregation which is the level of isolation of the emission source from the worker: -None segregation -Partial segregation without ventilation -Partial segregation with ventilation -Complete segregation without exhaust ventilation	Drop-down menu

	-Complete segregation with exhaust ventilation and no air circulation	
Air velocity at the opening of room ventilation	Give the air velocity in m/s at the opening of the room ventilation.	Open text field (only numbers)
Remarks	Field to include additional information regarding ventilation.	Open text field

! Important. Please save your entered data by clicking on the save icon at the right ribbon. Otherwise, data will not be saved.

Print screen 17 presents sub form 'Local control'.
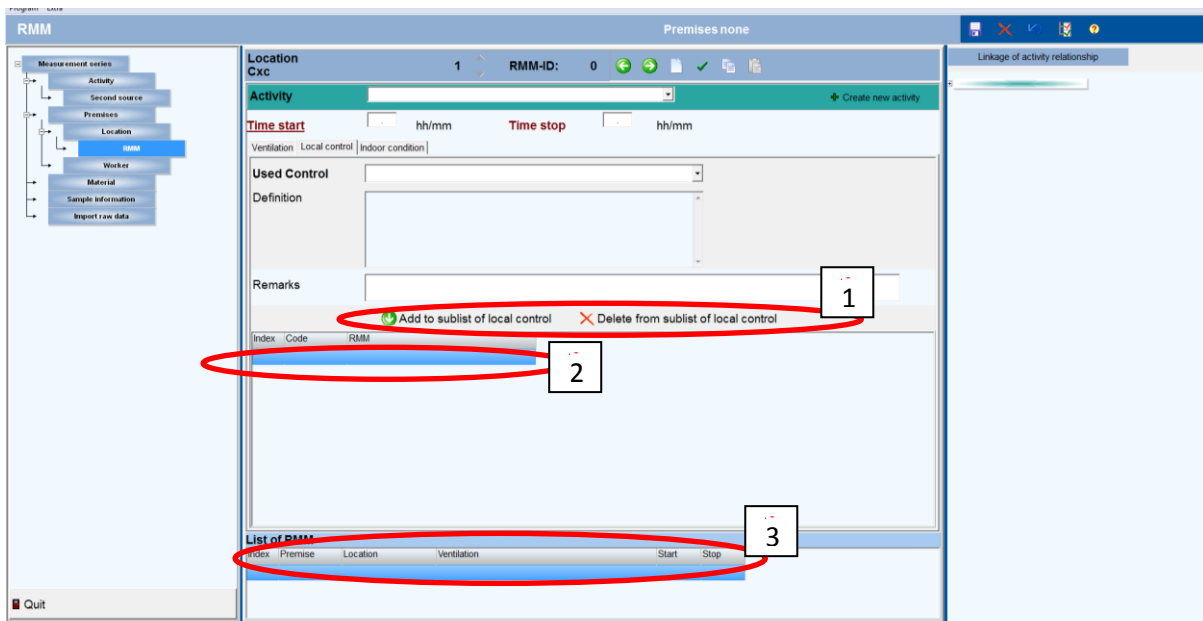
Print screen 17. Sub form RMM – Local control. 1: Buttons to add or delete a local control. 2: Overview of saved local controls 3: List of RMM.

The table below (table 12) gives an overview of the fields that have to be filled for RMM – sub form 'Local control'.

Table 12. Fields and their explanations to be filled in for RMM – sub form 'Local control'.

Field name	Explanation	Format
Used control	Indicate the RMM that is used: 0 No localized controls 1 Containment – no extraction 1.1 Low level containment 1.2 Medium level containment 1.3 High level containment 2 Local ventilation systems (LEV) 2.1 Receiving hoods 2.1.1 Canopy hood 2.1.2 Other receiving hoods	Drop-down menu

	2.2 Capturing hoods 2.2.1 Fixed capturing hood 2.2.2 Movable capturing hood 2.2.3 On-tool extraction 2.3 Enclosing hoods 2.3.1 Fume cupboard 2.3.2 Horizontal / downward laminar flow booth 2.3.3 other enclosing hoods 2.4 Other LEV systems 4 Suppression techniques 4.1 Wetting at the point of release 4.2 Knock-down suppression 5 Glove bags and glove boxes 5.1 Glove bag 5.1.1 Glove bag (non-ventilated) 5.1.2 Glove bag (ventilated or kept under negative pressure) 5.2 Glove box 5.2.1 Low-specification glove box 5.2.2 Medium-specification glove box 5.2.3 High-specification glove box	
Definition	After selecting a RMM a description and a picture of the RMM is given automatically	
Filter	Only asked for if RMM 2, 2.1, 2.1.1, 2.1.2, 2.2, 2.2.1, 2.2.2, 2.2.3, 2.3, 2.3.1, 2.3.2 2.3.3, 2.4, 5.1.2, 5.2, 5.2.1, 5.2.2 or 5.2.3 is selected. Indicate if a filter is used.	Yes / no option
Recirculating air	Only asked for if RMM 2, 2.1, 2.1.1, 2.1.2, 2.2, 2.2.1, 2.2.2, 2.2.3, 2.3, 2.3.1, 2.3.2 2.3.3, 2.4, 5.1.2, 5.2, 5.2.1, 5.2.2 or 5.2.3 is selected. Indicate if the air is recirculated.	Yes / no option
Filter group	Only asked for if RMM 2, 2.1, 2.1.1, 2.1.2, 2.2, 2.2.1, 2.2.2, 2.2.3, 2.3, 2.3.1, 2.3.2 2.3.3, 2.4, 5.1.2, 5.2, 5.2.1, 5.2.2 or 5.2.3 is selected. Indicate the type of filter: -F=Dust spot efficiency filters -G=Arrestance filters -H=HEPA filters -U=ULPA filters	Drop-down menu
Filter class	Only asked for if RMM 2, 2.1, 2.1.1, 2.1.2, 2.2, 2.2.1, 2.2.2, 2.2.3, 2.3, 2.3.1, 2.3.2 2.3.3, 2.4, 5.1.2, 5.2, 5.2.1, 5.2.2 or 5.2.3 is selected. Indicate the class of filter that is used. Class of filter that can be selected depends of type of filter selected.	Drop-down menu
Efficiency of this ventilation	Only asked for if RMM 2, 2.1, 2.1.1, 2.1.2, 2.2, 2.2.1, 2.2.2, 2.2.3, 2.3, 2.3.1, 2.3.2 2.3.3, 2.4, 5.1.2, 5.2, 5.2.1, 5.2.2 or 5.2.3 is selected. Indicate the efficiency of the ventilation:	Drop-down menu

	-poor -medium -high	
Air velocity at the opening of the machine ventilation	Only asked for if RMM 2, 2.1, 2.1.1, 2.1.2, 2.2, 2.2.1, 2.2.2, 2.2.3, 2.3, 2.3.1, 2.3.2 2.3.3, 2.4, 5.1.2, 5.2, 5.2.1, 5.2.2 or 5.2.3 is selected. Give the air velocity in m/s at the opening of the machine ventilation.	Open text field (numbers only)
Volume flow	Only asked for if RMM 2, 2.1, 2.1.1, 2.1.2, 2.2, 2.2.1, 2.2.2, 2.2.3, 2.3, 2.3.1, 2.3.2 2.3.3, 2.4, 5.1.2, 5.2, 5.2.1, 5.2.2 or 5.2.3 is selected. Give the volume flow of the local control, in the next field the unit should be indicated.	Open text field (numbers only
Volume flow	Only asked for if RMM 2, 2.1, 2.1.1, 2.1.2, 2.2, 2.2.1, 2.2.2, 2.2.3, 2.3, 2.3.1, 2.3.2 2.3.3, 2.4, 5.1.2, 5.2, 5.2.1, 5.2.2 or 5.2.3 is selected. Indicate the unit in which the volume flow is expressed.	Drop-down menu
Remarks	Field to include additional information regarding local control.	Open text field

! Important. Please save your entered data by clicking on the save icon at the right ribbon. Otherwise, data will not be saved.

Print screen 18 presents sub form 'Indoor conditions'.

Print screen 18. Sub form RMM – Indoor conditions. 1: List of RMM.

The table below (table 13) gives an overview of the fields that have to be filled for RMM – sub form 'Indoor conditions'.

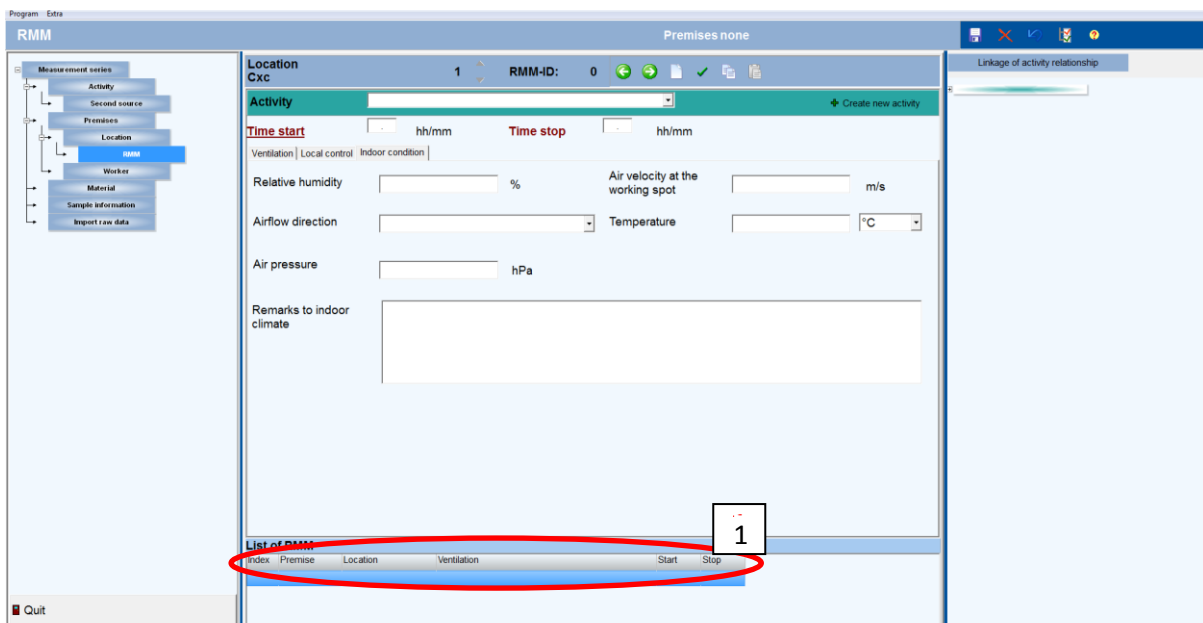Table 13. Fields and their explanations to be filled in for RMM – sub form 'Indoor conditions'.

Field name	Explanation	Format
Relative humidity	Give the average humidity in the working environment	Open text field (numbers only)
Air velocity at the working spot	Give the average air velocity in m/s.	Open text field (numbers only)
Airflow direction	Indicate the most dominant airflow direction with regard on source and worker.	Drop-down menu
Temperature	Give the temperature in the working environment	Open text field (numbers only)
Temperature	Indicate if temperature is given in degrees celcius or kelvin	Drop-down menu
Air pressure	Give the air pressure in the working environment	Open text field (numbers only)
Remarks to indoor climate	Field to include additional information regarding the indoor climate.	Open text field

! Important. Please save your entered data by clicking on the save icon at the right ribbon. Otherwise, data will not be saved.

2.2.2.2 Worker

For each premise information for one or more workers can be included (see print screen 19). Please describe the job code and the level of training of the worker in the use of PPE en RPE. Subsequently more detailed information about the used PPE and RPE can be included (paragraph 2.2.2.2.1).

Print screen 19. Input form 'worker'. 1: Ribbon to scroll between different workers and some other options. 2: List of workers.

The table below (table 14) gives an overview of the fields that have to be filled for 'Worker'.

Table 14. Fields and their explanations to be filled in for 'Worker'.

Field name	Explanation	Format
Job title	Give a description of the job title of the worker	Open text field
Worker Number	Give a number to the worker	Open text field (numbers only)
ISCO job title	Please select a ISCO job title. By clicking on the magnifier behind 'ISCO Job code' you will open a coding list form SVZ-ISCO, see print screen 20. Please be as specific as possible.	Drop-down menu
Trained to PPE	Indicate how trained and experienced a worker is: -trained and experienced -trained and unexperienced -untrained and experienced -untrained and unexperienced	Drop-down menu
Briefed on risks	Indicate if the worker is briefed on the nano specific risks	Yes / no option
Shaven?	Indicate if the worker is clean shaven in case of the use of a tight fitting face-piece	Yes / no option
Trained to wear RPE	Indicate of the worker is trained how to use the respiratory protective equipment (RPE) correctly.	Yes / no / non-applicable option
Trained to store RPE	Indicate of the worker is trained how to store the respiratory protective equipment (RPE) correctly.	Yes / no / non-applicable option
Trained to maintain RPE	Indicate of the worker is trained how to maintain the respiratory protective equipment (RPE) correctly.	Yes / no / non-applicable option
Remarks	Field to include additional information regarding the worker.	Open text field

! Important. Please save your entered data by clicking on the save icon at the right ribbon. Otherwise, data will not be saved.
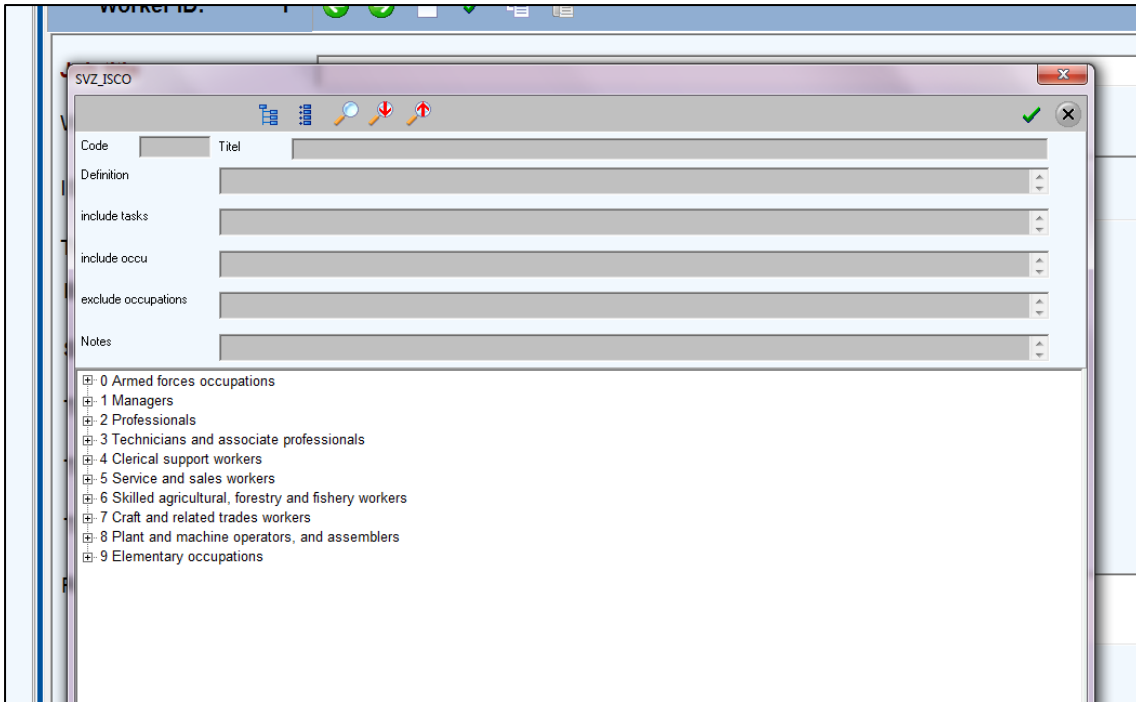
Print screen 20. By clicking on the magnifier behind 'ISCO Job code' in print screen 19 you open a coding list form SVZ-ISCO. At the beginning you see major divisions. By clicking on the plus icons you will come to more detailed descriptions. Please be as specific as possible.

2.2.2.2.1 Expos and PPE

For each individual worker information regarding the use of PPE can be included (see print screen 21). This worker can be linked to one or more activities.
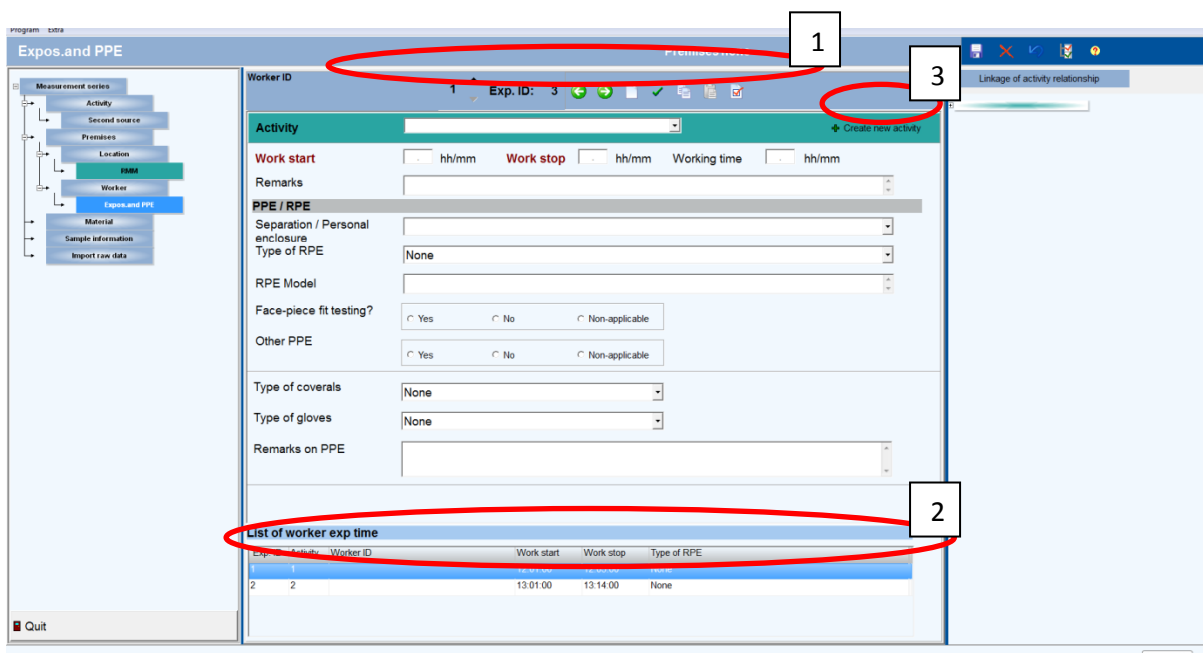
Print screen 21. Input form 'Expos and PPE'. 1: Ribbon to scroll between different workers and the activities for each worker and some other options. 2: List of workers and the use of PPE for each activity. 3: Possibility to include additional activities.

The table below (table 15) gives an overview of the fields that have to be filled in:

Table 15. Fields and their explanations to be filled in for input form 'Expos and PPE'.

| Field name	Explanation	Format
Activity	Indicate the activity the worker is performing. These activities are included in the input form 'Activity'. If an additional activity should be included then the user can use button 3 from print screen 21.	Drop-down menu
Work start	The field is automatically filled based on the activity selected. However, the user is able to adapt/fill in the time manually.	Automatically filled or open text field (numbers only)
Work stop	The field is automatically filled based on the activity selected. However, the user is able to adapt/fill in the time manually.	Automatically filled or open text field (numbers only)
Working time	The field is automatically filled based on the start and stop time of the work	Automatically filled or open text field (numbers only)
Remarks	Open text field to include additional information regarding the working time	Open text field
Separation/personal enclosure	Indicate the level of separation/personal enclosure: -None separation -Partial separation without ventilation -Partial separation with ventilation -Complete separation without ventilation -Complete separation with ventilation	Drop-down menu
Type of RPE	Select the type of RPE that is used: -None (this is the default in case no information is available) -Respirator/Filtering Face Piece (FFP1) -Respirator/Filtering Face Piece (FFP2) - Respirator/Filtering Face Piece (FFP3) -Respirator/half mask, particle filter (FMP1 or P1) -Respirator/half mask, particle filter (FMP2 or P2) -Respirator/half mask, particle filter (FMP3 or P3) -Respirator/Full face mask, particle filter (P1) -Respirator/Full face mask, particle filter (P2) -Respirator/Full face mask, particle filter (P3) -Respirator/powered(fan-assisted mask)(TM1P) -Respirator/powered(fan-assisted mask)(TM2P) -Respirator/powered(fan-assisted mask)(TM3P) -Respirator/powered(fan-assisted hood)(TH1P) -Respirator/powered(fan-assisted hood)(TH2P) -Respirator/powered(fan-assisted hood)(TH3P) -Breathing apparatus/constant flow airline BA (LDH1) -Breathing apparatus/constant flow airline BA (LDH2,LDM1,LDM2 or half mask) -Breathing apparatus/constant flow airline BA (LDH3,LDM3, hood or full mask)	Drop-down menu

	-Breathing apparatus/constant flow airline BA (suit) -Breathing apparatus/continiuous flow airline(BA, 1A, 1B) -Breathing apparatus/continiuous flow airline(BA, 2A, 2B) -Breathing apparatus/continiuous flow airline(BA, 3A, 3B) -Breathing apparatus/continiuous flow airline(BA, 4A, 4B) -Breathing apparatus/half mask/Demand valve BA (Airline or self-contained) -Breathing apparatus/full face mask/ Demand valve BA (Airline or self-contained), with positi -Breathing apparatus/full face mask/ Demand valve BA (Airline or self-contained), without po -Other, specify	
RPE model	Use this field if the option 'Other: specify' is selected in the previous drop-down menu	Open text field
Face-piece fit testing	Indicate if the wearer of a tight-fitting face-piece has undergone face-piece fit testing	Yes / No / non-applicable option
Other PPE	Indicate if another PPE is used with a respirator or a breathing apparatus.	Yes / No / non-applicable option
Goggles	Only asked for is question 'Other PPE' is answered with 'yes'. Indicate the type of goggles that is used: -None -Eye-protectors, spectacles -Goggles, type 4 against dusts -Goggles, type 5 against gases, fumes, aerosols -Eye-shield attached to industrial helmet	Drop-down menu
Does the wearer use optic spectacles	Only asked for is question 'Other PPE' is answered with 'yes'. Indicate if the wearer uses optic spectacles.	Yes / No option
Face shield	Only asked for is question 'Other PPE' is answered with 'yes'. Indicate if the wearer uses a face shield.	Yes / No option
Hearing protection	Only asked for is question 'Other PPE' is answered with 'yes'. Indicate if the wearer uses: -None -Hearing protection, ear plugs -Hearing protection, ear muffs -Ear muffs attached to industrial helmet -Eye-shield attached to industrial helmet	Drop-down menu
Helmet	Only asked for is question 'Other PPE' is answered with 'yes'. Indicate if the worker wears a helmet.	Yes / No option
Type of coverall	Indicate the type of coverall: -None -None protective work wear -Coverall (Chemical type 1)	Drop-down menu

	-Coverall (Chemical type 2) -Coverall (Chemical type 3) -Coverall (Chemical type 4) -Coverall (Chemical type 5) -Coverall (Chemical type 6) -Coverall (heat and flame) -Coverall (mechanical) -Coverall (heat and flame) -other: specify	
Type of gloves	Indicate the type of gloves: -None -Disposable gloves -Gloves (Chemical) -Gloves (Mechanical) -Gloves (Heat and flame) -Other: specify	Drop-down menu
Remarks on PPE	Field to include additional information regarding the use of PPE.	

! Important. Please save your entered data by clicking on the save icon at the right ribbon. Otherwise, data will not be saved.

2.2.3 Material

For each material (print screen 22) and the ingredients (print screen 23) of materials information should be included in NECID.
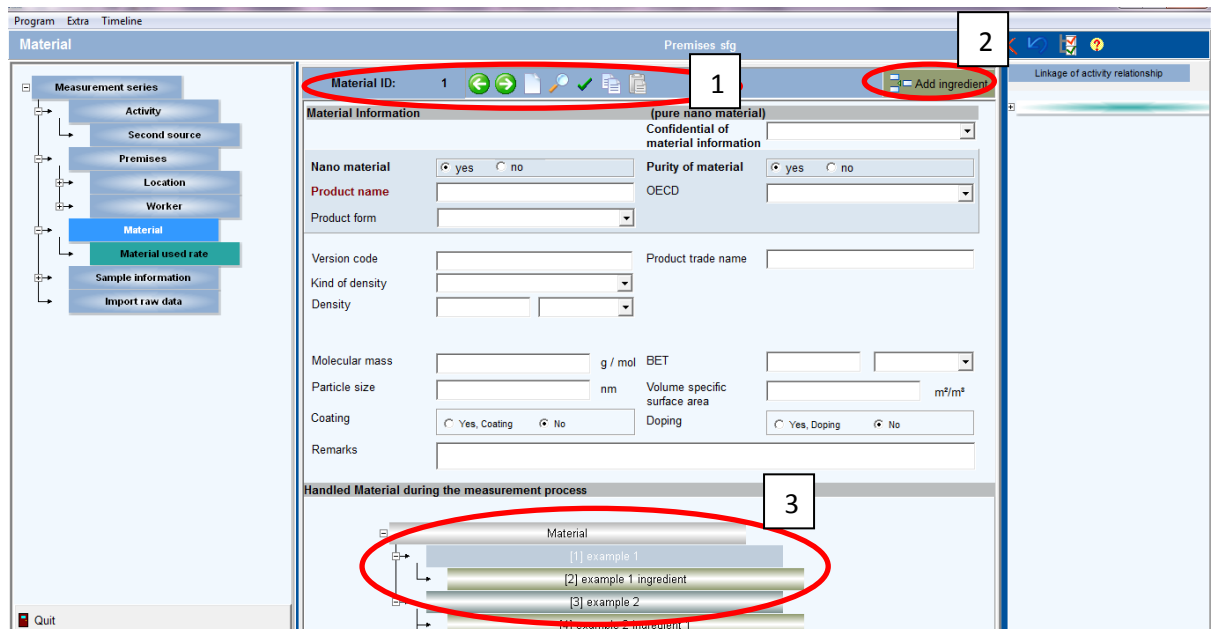
Print screen 22. Input form 'Material'. 1: Ribbon to scroll between different materials and some other options. 2: Button to include ingredients, linked to the selected material. 3: Overview of included materials and ingredients.
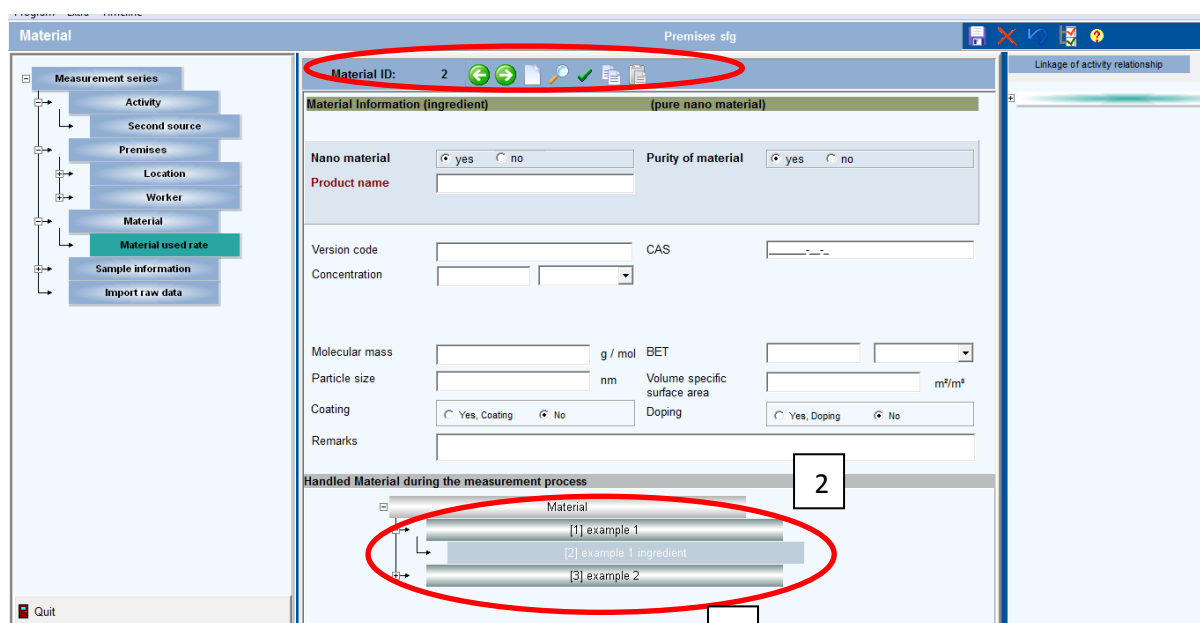
The table below (table 16) gives an overview of the fields that have to be filled in.

Table 16. Fields and their explanations to be filled in for input form 'Material'.

Field name	Explanation	Format
Confidential of material	Indicate the confidentiality of the material: -Free for NECID -Only categorized material information free for NECID -Confidential (only for institute)	Drop-down menu
Nano material	Indicate if the material handled is a nano material. In case 'No' is selected, some questions will disappear as they are not relevant in that case.	Yes / No option
Purity of material	Indicate if a pure or raw material is used or a material containing different ingredients.	Yes / No option
Product name	Give the common substance or product name.	Open text field
OECD	Indicate the material handled based on the OECD list.	Drop-down menu
Product form	Indicate the form of the product: - liquid -powder -solid object -fibers -paste	Drop-down menu
Version code	Give the version code of the product.	Open text field
Product trade name	Give the name of the product as it is traded	Open text field
Kind of density	Select a category of density: -Bulk -Elemental -Agglomerate	Drop-down menu
Density	Give the density of the material.	Open text field (numbers only)
Density	Indicate if the density is in g/cm^3 or kg/m^3	Drop-down menu
Molecular mass	Give the molecular mass of the product.	Open text field (numbers only)
BET	Give the Brunauer-Emmett-Teller(BET) surface area.	Open text field (numbers only)
BET	Indicate the unit in which the BET is expressed.	Drop-down menu
Particle size	Give the initial particle size of the product	Open text field (numbers only)
Volume specific surface area	Give the Volume specific surface area.	Open text field (numbers only)
Coating	Indicate if the product is coated.	Yes / No option
Doping	Indicate if the product is doped.	Yes / No option
Remarks	Field to include additional information regarding the used material.	Open text field
Viscosity	Only asked for if for 'Product form' the	Drop-down menu

	answer 'liquid' or 'Paste' is selected. Indicate the viscosity: -Low viscosity -Moderate viscosity -High viscosity	
Dustiness	Only asked for if for 'Product form' the answer 'Powder', 'Solid object' or 'fibers' is selected. Indicate the dustiness: -Firm ganules: For example, firm polymer granules, granules covered with a layer of wax, bound fibres, such as in cotton. No dust emission without intentional breakage of the product -Granules, flakes or pellet: Granules or flakes that may fall apart and crumble. For example, washing powder, sugar or fertilizer -Coarse dust: A dust cloud is formed, but settles quickly due to gravity. For example, sand, coarse carbon black, calcium stearate, unbound fibres -Fine dust: A dust cloud is formed that is clearly visible for some time. For example, talcum powder, flour -Extremely fine and light powder: A visible dust cloud remains airborne for a long time	Drop-down menu
Moisture content	Only asked for if for 'Product form' the answer 'Powder' or 'Solid object' is selected. Indicate the moisture content: -Dry product (<5% moisture content) -5-10% moisture content ->10% moisture content	Drop-down menu
Measured dustiness system	Only asked for if for 'Product form' the answer 'Powder', 'Solid object' or 'fibers' is selected. Indicate which dustiness system is used to measure the dustiness: -rotating drum -continuous drop	Drop-down menu
Measured dustiness	Only asked for if for 'Product form' the answer 'Powder', 'Solid object' or 'fibers' is selected. Give the measured dustiness.	Open text field (numbers only)
Measured dustiness	Only asked for if for 'Product form' the answer 'Powder', 'Solid object' or 'fibers' is selected. Indicate which unit is used to express the dustiness: -mg/kg	Drop-down menu

! Important. Please save your entered data for each individual material and ingredient by clicking on the save icon at the right ribbon. Otherwise, data will not be saved.

Print screen 23. Input form 'Material' sub form 'Ingredients'. 1: R[...]n to scroll between different ingredients and some other options. 2: Overview of included materials and ingredients.

The table below (table 17) gives an overview of the fields that have to be filled in:

Table 17. Fields and their explanations to be filled in for input sub form 'Ingredients'.

Field name	Explanation	Format
Nano material	Indicate if the ingredient is a nano material. In case 'No' is selected, some questions will disappear as they are not relevant in that case.	Yes / No option
Purity of material	Indicate if a pure or raw ingredient is used or a material containing different ingredients.	Yes / No option
Product name	Give the common substance or product name.	Open text field
Version code	Give the version code of the product.	Open text field
CAS	Give the Chemical Abstracts Service (CAS)-number	Format, only numbers
Concentration	Give the concentration of this ingredient in the product	Open text field (numbers only)
Concentration	Indicate which unit is used to express the concentration: -%mass -%vol	Drop-down menu
Molecular mass	Give the molecular mass of the	Open text field (numbers only)

	product in g/mol.	
BET	Give the Brunauer-Emmett-Teller(BET) surface area.	Open text field (numbers only)
BET	Indicate the unit in which the BET is expressed.	Drop-down menu
Particle size	Give the initial particle size of the ingredient.	Open text field (numbers only)
Volume specific surface area	Give the Volume specific surface area.	Open text field (numbers only)
Coating	Indicate if the product is coated.	Yes / No option
Doping	Indicate if the product is doped.	Yes / No option
Remarks	Field to include additional information regarding the used ingredient.	Open text field

! Important. Please save your entered data for each individual material and ingredient by clicking on the save icon at the right ribbon. Otherwise, data will not be saved.

2.2.3.1 Material used rate

For each activity the used material and use rate should be described, see print screen 24. Already included activities are linked with already included materials. Subsequently, the amount and use rate should be filled in.
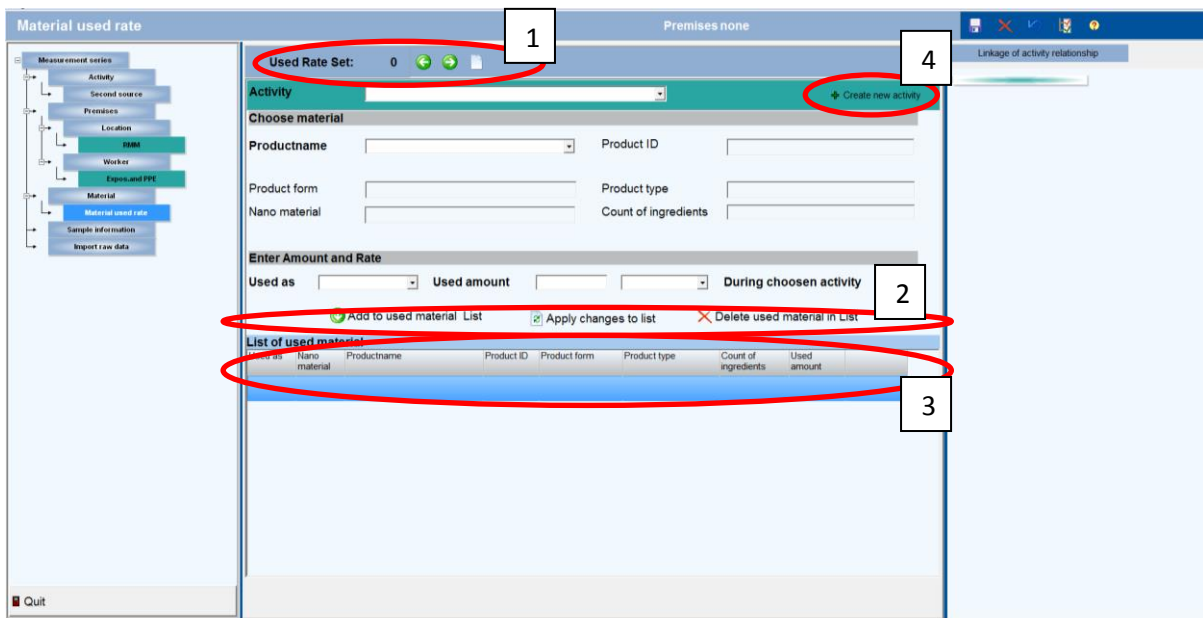
Print screen 24. Input form 'Material used rate'. 1: Ribbon to scroll between different use rates. 2: Ribbon to add, delete and change information for the used materials. 3: Overview of included used materials. 4: Possibility to include additional activities.

The table below (table 18) gives an overview of the fields that have to be filled in:

Table 18. Fields and their explanations to be filled in for input form 'Material used rate'.

Field name	Explanation	Format
Activity	Indicate the activity the worker is performing. These activities are included in the input form 'Activity'. If an additional activity should be included then the user can use button 4 from print screen 24.	Drop-down menu
Productname	Select the product used during the activity. The products presented in the list are the products included in the input form 'Material'.	Drop-down menu
Product ID	Automatically filled based on input form 'Material'	
Product form	Automatically filled based on input form 'Material'	
Product type	Automatically filled based on input form 'Material'	
Nano material	Automatically filled based on input form 'Material'	
Count of ingredients	Automatically filled based on input form 'Material'	
Used as	Indicate if the amount of material that is used is the: -Input: Amount of material going into the system. -Output: Amount of material going out of the system. -Handled material: Amount of material actually used.	Drop-down menu
Used amount	Give the amount of product that is used.	Open text field (numbers only)
During choosen activity	Give the unit of the used amount: -mg: milligram -g: gram -kg : kilogram -t: ton -ml: milliliter -l: liter -m^3: cubic meter.	Drop-down menu

! Important. Please save your entered data by clicking on the save icon at the right ribbon. Otherwise, data will not be saved.

2.2.4 Sample information

The forms 'Sample informaton', 'Sample link' and 'Analytical results' can be used to include data from off-line measurements to NECID. For each sample information about the measurement location, used instruments and measurement time should be included in the form 'Sample

information', see print screen 25. If more than one instrument should be included, then different forms should be completed.
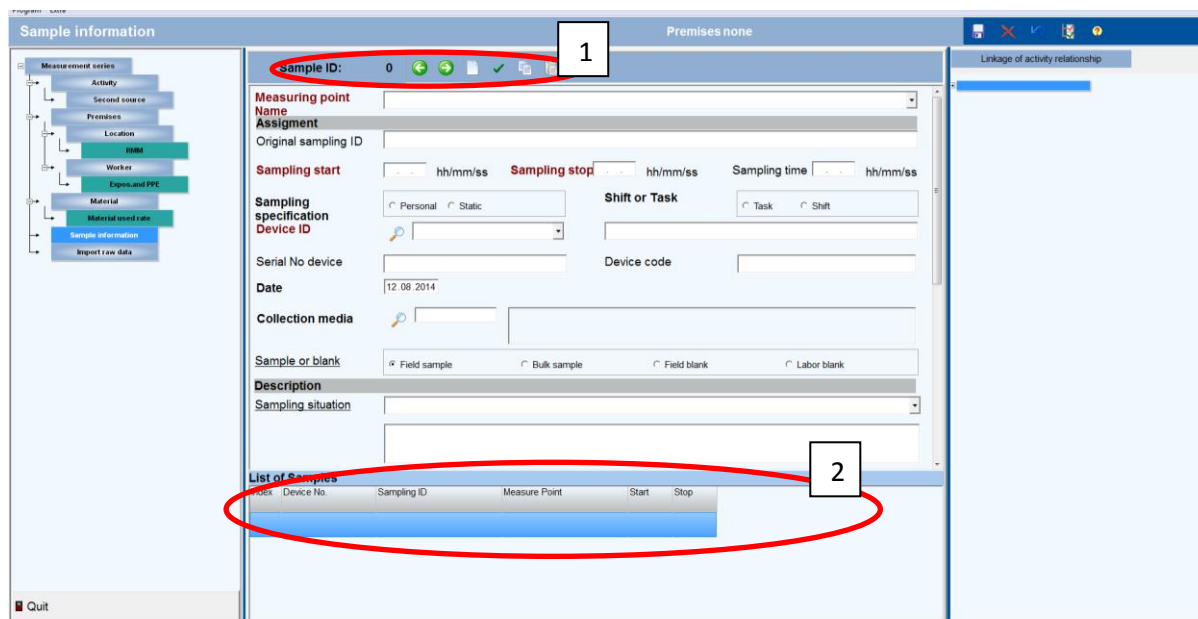
Print screen 25. Input form 'Sample information'. 1: Ribbon to scroll between samples and some other options. 2: Overview of included samples.

The table below (table 19) gives an overview of the fields that have to be filled in:

Table 19. Fields and their explanations to be filled in for input form 'Sample information.

| Field name	Explanation	Format
Measuring point name	Give a name to the point where one or more measurements are performed of samples are collected	Open text field and drop-down menu.
Original sampling ID	Free text field to include the original sampling ID	Open text field
Sampling start	Starting date (DD.MM.YYYY) and time (HH.MM.SS) of the sampling	Open text field (only numbers) format (hh/mm/ss)
Sampling stop	Ending date (DD.MM.YYYY) and time (HH.MM.SS) of the sampling	Open text field (only numbers) format (hh/mm/ss)
Sampling time	Total time of the sampling, automatically filled (HH.MM.SS).	Automatically filled
Sampling specification	Indicate if the sampling is personal or static.	Personal / Static option
Shift or Task	Indicate if the sampling is shift-based or task-based.	Task / Shift option
Device ID	Click on the magnifying glass button and a list of devices is given, see print screen 26. The devices are also presented in a drop-down menu. Select the device that is used.	Drop-down menu
Device ID	The ID of the device is presented based on the selected device from the list of the institute.	Automatically filled

Serial No device	The serial number of the device is presented based on the selected device from the list of the institute.	Automatically filled
Device code	The device code is presented based on the selected device from the list of the institute.	Automatically filled
Date	Give the date of the measurement.	Open text field (only numbers) format (hh/mm/ss)
Collection media	Click on the magnifying glass button and a list of collection media is given, see print screen 27. The collection media are also presented in a drop-down menu. Select the collection media that is used.	Drop-down menu
Eg. Manufacturer, Catalogue number, batch number	Only asked for when relevant. Give the Manufacturer, Catalogue number and batch number.	Open text field
Collector Remarks	Field to include additional information regarding the collector.	Open text field
Sample or blank	Indicate what type of sample is collected: -Field sample -Bulk sample -Field blank -Labor blank	Field sample / Bulk sample / Field blank / Labor blank option
Sampling situation	Indicate if the sample is collected: -Random -Representative -Compliance	Drop-down menu
Sampling situation	Field to include additional information regarding the sampling situation.	Open text field
Volume flow rate	Give the volume flow rate during sampling	Open text field (numbers only)
Volume flow rate	Give the unit in which the volume flow rate is expressed: -l/min -m^3/H	Drop-down menu
Time interval	Give the logging time/sampling interval of the device	Open text field (only numbers) format (hh/mm/ss)
Average interval	Give the device average logging time	Open text field (only numbers) format (hh/mm/ss)
Preseperator used	Indicate if an impactor or preseparator is used during sampling.	Yes / No option
Preseperator used	Open text field to include additional information regarding the preseparator used.	Open text field.
Dilution used	Indicate if the sampled air is diluted.	Yes / No option
Dilution ratio	Only asked for if for 'Dilution used'	Open text field

	the answer 'yes' is selected. Give the dilution ratio	
Dilution ratio denominator	Only asked for if for 'Dilution used' the answer 'yes' is selected. Give the dilution ratio denominator	Open text field
Air velocity	Give the air velocity at the measuring point	Open text field (numbers only)
Remarks	Open text field to include additional information regarding the sampling	Open text field

! Important. Please save your entered data by clicking on the save icon at the right ribbon. Otherwise, data will not be saved.
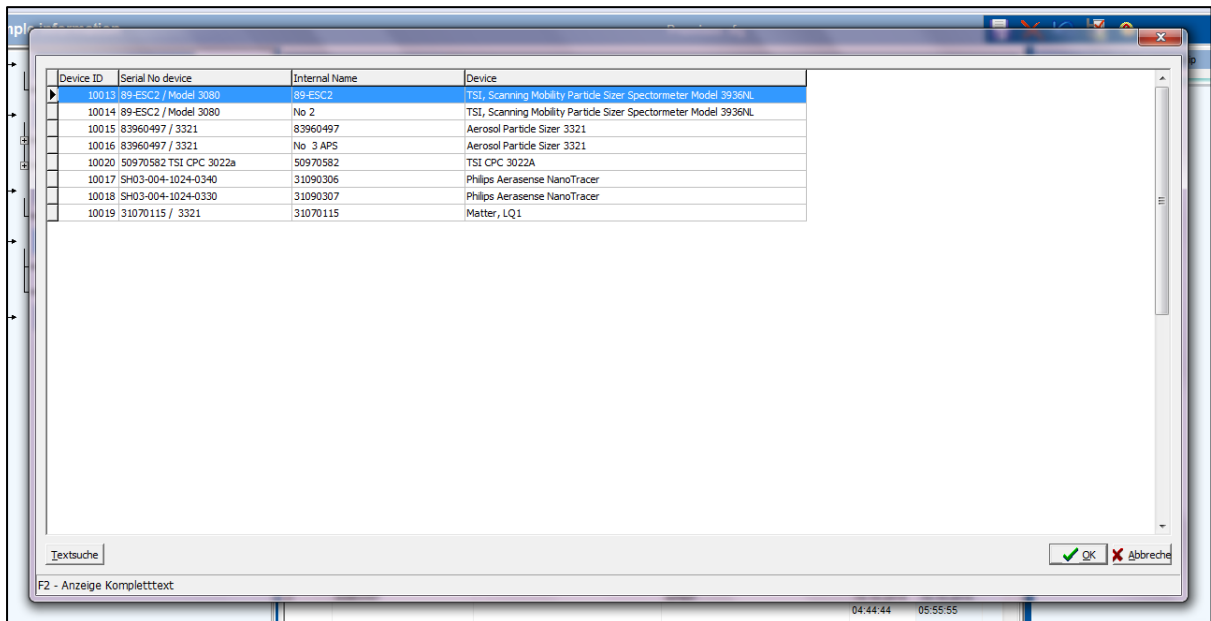
Print screen 26. By clicking on the magnifier behind 'Device ID' you open a list of devices used in your institute.
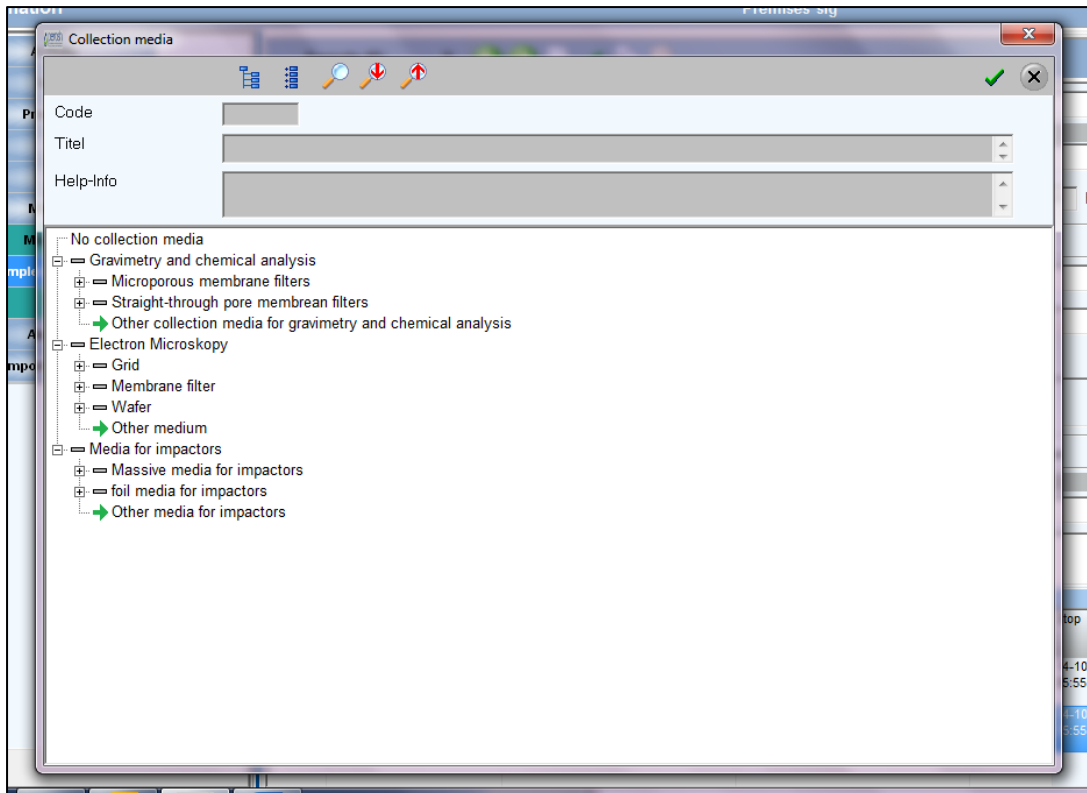
Print screen 27. By clicking on the magnifier behind 'Collection media' you open a list of collection media.

2.2.4.1 Sample link

For each sample information about the function of the measurement and the distance of the sampling point to source, worker and ventilation should be included in the form 'Sample link', see print screen 28.
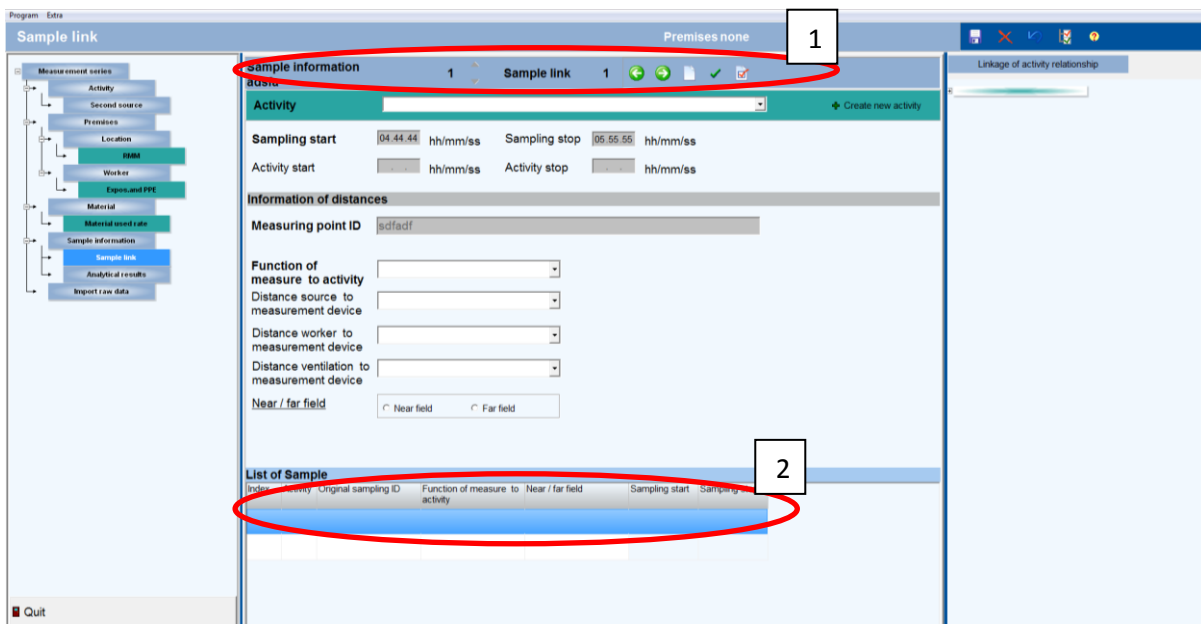
The table below (table 20) gives an overview of the fields that have to be filled in in input form 'Sampling link':

Table 20. Fields and their explanations to be filled in for input form 'Sample link'.

Field name	Explanation	Format
Sample information	Select one of the included samples	Drop-down option in ribbon. See print screen 28 number 1.
Activity	Select the activity for which the sample is collected.	Drop-down option
Sampling start	Automatically the start time of the sampling is given based on included information about the sampling.	Automatically filled
Sampling stop	Automatically the stop time of the sampling is given based on included information about the sampling.	Automatically filled
Activity start	Automatically the start time of the activity is given based on included information about the activity.	Automatically filled
Activity stop	Automatically the start time of the sampling is given based on included information about the activity.	Automatically filled
Measuring point ID	Automatically filled based on the ID included in the Sample information.	Automatically filled
Function of measure to activity	Indicate the function of the sampling in connection to the activity. Select the type of air that is measured: -Main -Incoming air -Background -Second source	Drop-down menu
Distance source to measurement device	Indicate the distance from the measurement device (end of tube) to the source. Distance in meters.	Drop-down menu
Distance worker to measurement device	Indicate the distance from the measurement device (end of tube) to the worker. Distance in meters.	Drop-down menu
Distance ventilation to measurement device	Indicate the distance from the measurement device (end of tube) to the ventilation. Distance in meters.	Drop-down menu
Near / far field	Indicate if the measurement is performed in the near field or the far field.	Near field / Far field option

! Important. Please save your entered data by clicking on the save icon at the right ribbon. Otherwise, data will not be saved.
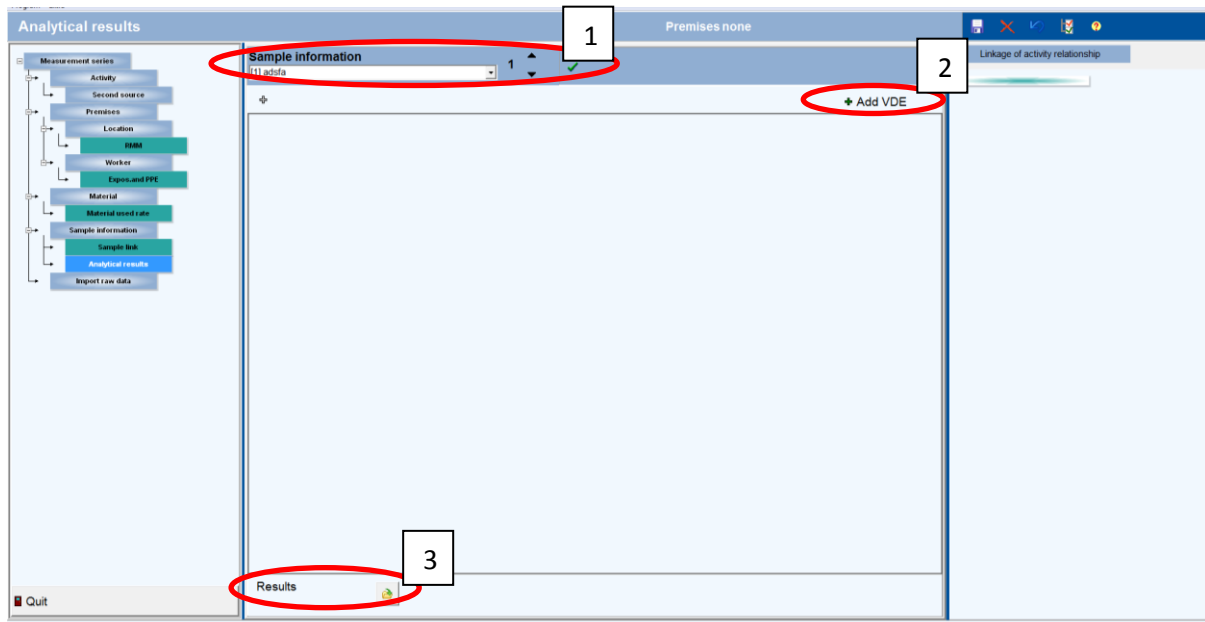
2.2.4.2   Analytical results

Subsequently, to each sample the results from the analysis can be linked, see print screen 29 and 30.

Print screen 29. Input form 'Analytical results'. 1: Ribbon to scroll between samples. 2: Button to include measurement results. 3: Icon to upload measurement data.

First the user should select a 'Sample information' under button 1. Subsequently the user should click on 'Add VDE'. The input form below (print screen 30) will be presented. Select all relevant information regarding analyzed elements, chemical compounds, dust fraction, fibers, particles and type of analyse technique in the input form. Subsequently, this information is automatically presented in the input form 'Analytical results', see print screen 31. Table 21 will give the information an user should include in input form 'Analytical resulsts'.
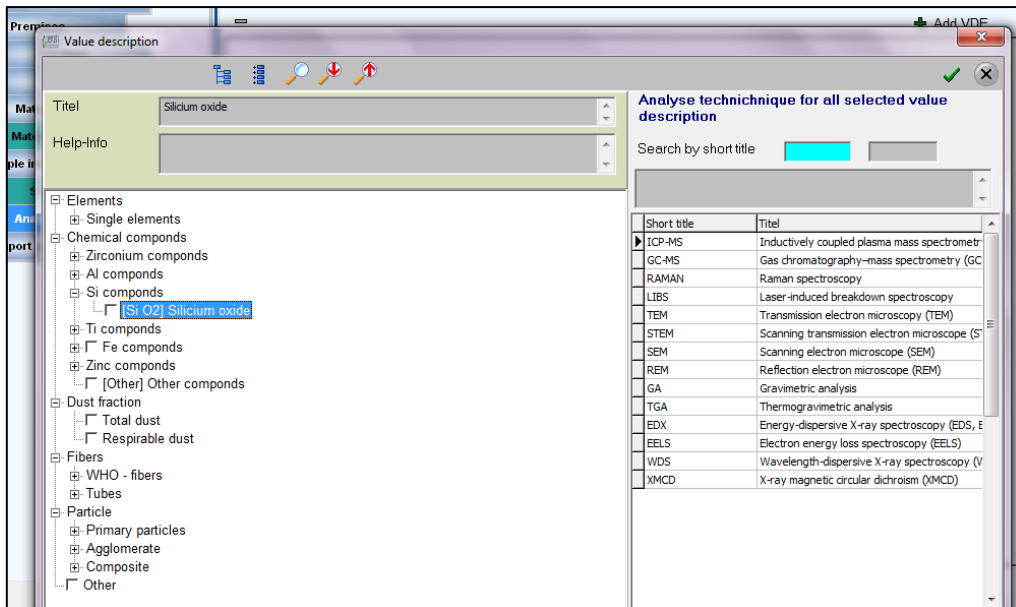
Print screen 30. Overview of elements, chemical compounds, dust fraction, fibers, particles and type of analyse technique of which a selection could be made.
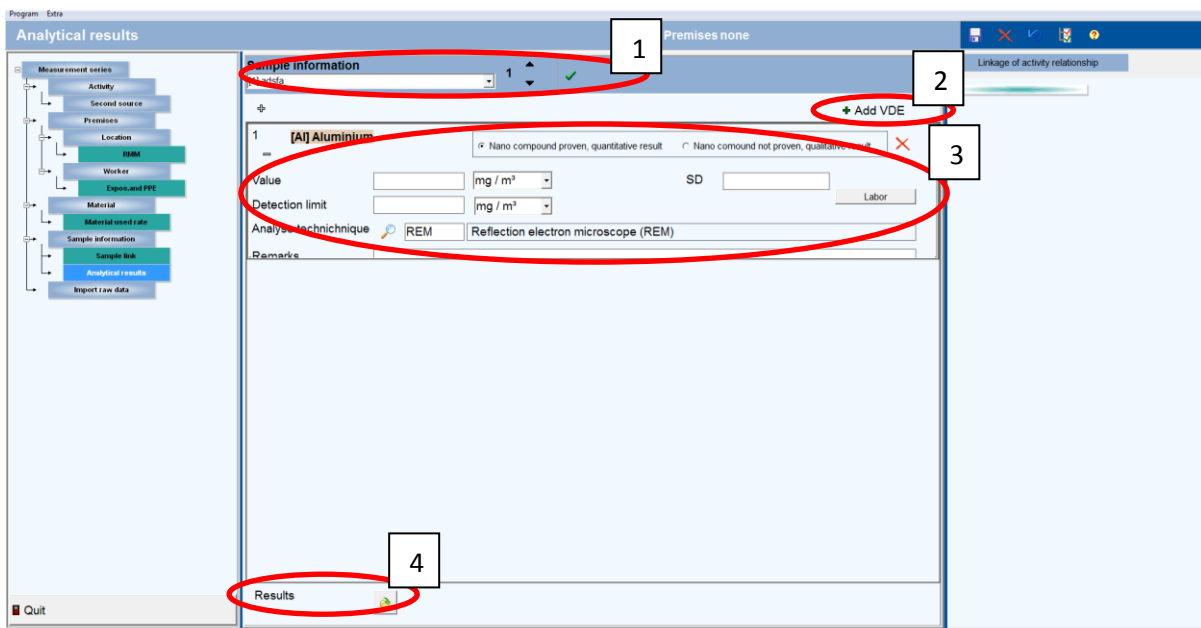

Print screen 31. Input form 'Sample link'. 1: Ribbon to scroll between samples. 2: Button to include measurement results. 3: Input fields for measurement data. 4: Icon to upload measurement data.

The table below (table 21) gives an overview of the fields that have to be filled in.

Table 21. Fields and their explanations to be filled in for input form 'Analytical results'.

Field name	Explanation	Format
Add VDE	Open VDE and select all relevant information regarding analyzed elements, chemical compounds, dust fraction, fibers, particles and type of analyse technique in the input form	Pick list

46

	(see print screen 30).	
Nano compound proven, quantitative result / Nano compound not proven, qualitative result	Indicate if the results are quantitative or qualitative.	Two answer option
Value	Only asked for if for 'Nano compound proven, quantitative result' is selected. Give the measured concentration.	Open text field (numbers only)
value	Only asked for if for 'Nano compound proven, quantitative result' is selected. Select the unit in which the concentration is expressed: -mg/m^3 -$\mu g/m^3$ -ng/m^3 -g/m^3 -%	Drop-down menu
SD	Only asked for if for 'Nano compound proven, quantitative result' is selected. Give the Standard deviation.	Open text field (numbers only)
Detection limit	Only asked for if for 'Nano compound proven, quantitative result' is selected. Give the detection limit of the analytical technique.	Open text field (numbers only)
Detection limit	Only asked for if for 'Nano compound proven, quantitative result' is selected. Select the unit of the detection limit: -mg/m^3 -$\mu g/m^3$ -ng/m^3 -g/m^3 -%	Drop-down menu
Labor	Only asked for if for 'Nano compound proven, quantitative result' is selected.	
Existence of likelihood	Only asked for if for 'Nano compound not proven, qualitative result' is selected. Indicate the likelihood of exposure to nano material: -Very likely -Likely -Doubtful -Unlikely -No indication	5-answer option
Qualitative value	Only asked for if for 'Nano compound not proven, qualitative result' is selected. Give a qualitative value.	Open text field (numbers only)
Qualitative value	Only asked for if for 'Nano compound not proven, qualitative result' is selected. Select the unit of the qualitative value: -mg/m^3	Drop-down menu

	-μg/m^3 -ng/m^3 -g/m^3 -%	
Analyse technique	Click on the magnifying glass button and analytical techniques is presented, see print screen 32. Select the analytical technique that is used.	Pick list
Remarks	Open text field to include additional information regarding the performed analysis.	Open text field
Results	Possibility to link raw data to a sample by uploading the raw data	Not applicable

! Important. Please save your entered data by clicking on the save icon at the right ribbon. Otherwise, data will not be saved.
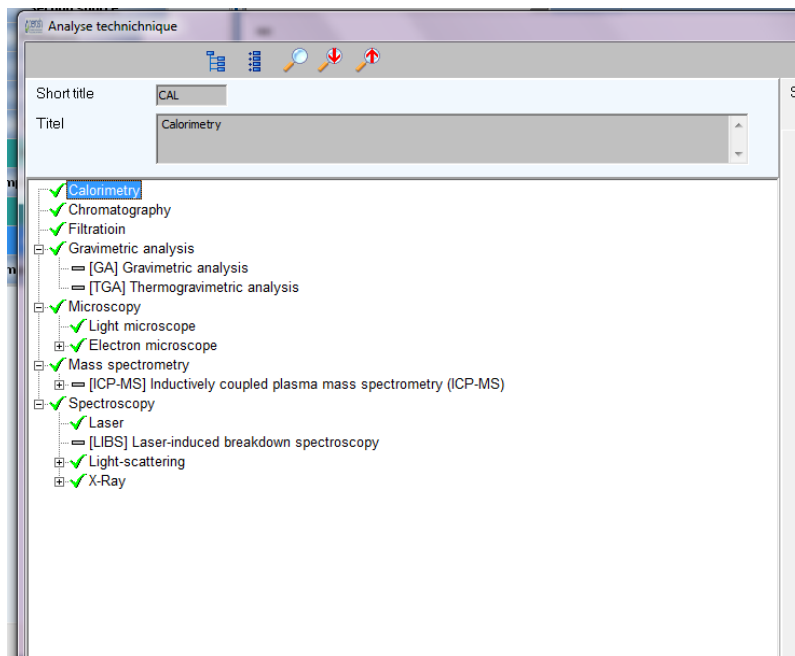
Print screen 32. Overview of analytical techniques. Use this screen to select the used technique.

2.2.5   Import raw data

Finally, raw data can be uploaded for the used online measurement instruments, see print screen 33. Print screen 33 gives an example of how the input form looks like in case in sample information the use of a SMPS and APS is indicated. It is possible to upload data or delete data and to set values for the raw data file.
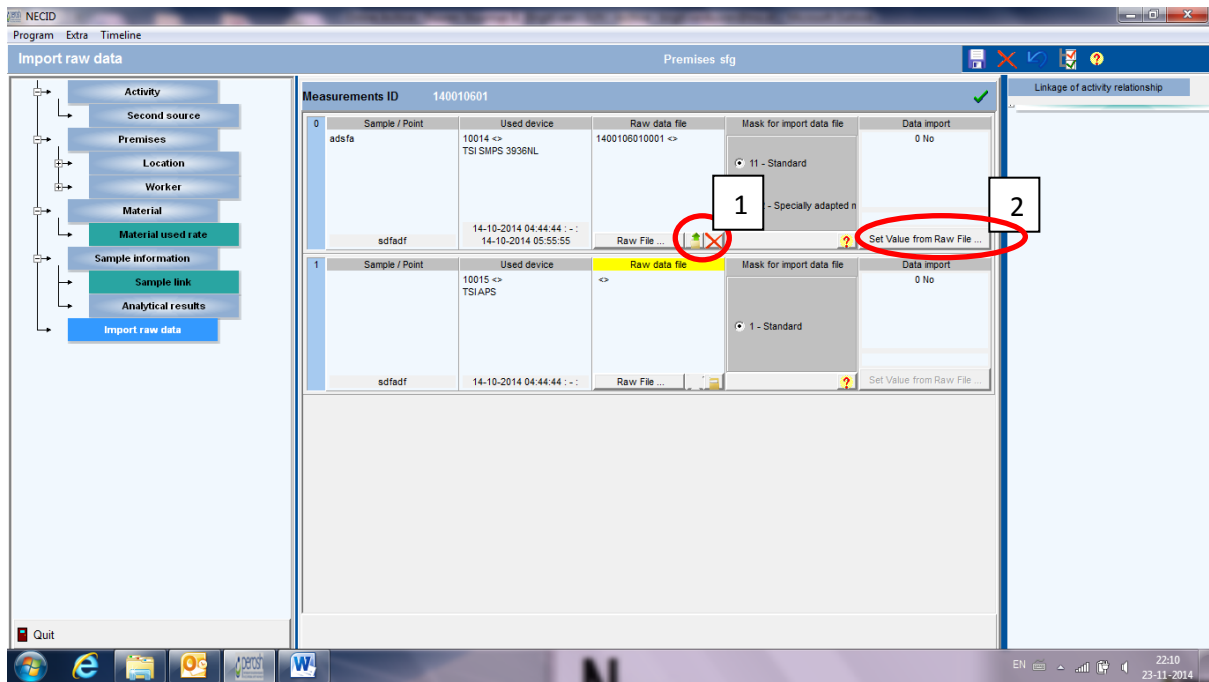
Print screen 33. Example of input form 'Import raw data' in case in sample information the use of a SMPS and APS is indicated. 1. Possibility to upload data or delete data. 2. Button to set the values for the raw dataset.

3   Protocol (PDF)

Function to make a PDF file of the selected measurement studies.

4   Timeline

5   Data Exchange

Function to import and export data included in NECID.

6 Export (Excel)

Function to export the included data in NECID to Excel

7   Basic data Update

Function to perform an update of the basic data table.

8 Overview of print screens

Print screen 1. Login screen for NECID.

Print screen 2. Welcome page NECID. 1. Button to change the user profile. 2. Documents and files to install NECID on your computer.

Print screen 3. Input form 'User profile'. 1 Overview of user profile and possibility to change the user profile. 2. The possibility to change the question in case you have forgotten your password . 3. Possibility to get a new password.

Print screen 4. Subform 'Change question'.

Print screen 5. Sub form 'New Password'.

Print screen 6. Overview of NECID after login.

Print screen 7. 1: Sitemap, 2: Fill in form, 3: List of entered measurement series, 4: Linkage of activity relationships, 5: Ribbon.

Print screen 8. Input form 'Measurement'. 1: Ribbon to include new forms, delete forms or save information.

Print screen 9. Input form 'Activity'. 1: Ribbon to scroll between different activities and some other options. 2: Overview of included activities. 3: Ribbon to include new forms, delete forms or save information.

Print screen 10. By clicking on the magnifier behind 'Activity code' in print screen 9 you open a coding list for the different source domains. By clicking on the '+' icon you will come to the more specific activity classes. Please be as specific as possible. After selecting an activity the input fields will be automatically filled.

Print screen 11. Input form 'Second source'. 1; Ribbon to scroll between different secondary sources and some other options. 2: Overview of included secondary sources. 3 Ribbon to include new forms, delete forms or save information.

Print screen 12. Input form 'Premises'. 1, Overview of included premises. 2; Ribbon to include new forms, delete forms or save information.

Print screen 13. By clicking on the magnifier behind 'Branche code' in print screen 12 you open a coding list of the Industrial Classification system NACE industries. At the beginning you see the several industry divisions. By clicking on the plus icon you will come to the major group, the industry group and at least to the specific industry. Please be as specific as possible. The NACE – Code is the EU classification of economic activities: http://europa.eu.int/eur-lex/lex/JOHtml.do?uri=OJ:L:2006:393:SOM:EN:HTML

Print screen 14. Input form 'Locations'. 1; Ribbon to scroll between different locations and some other options. 2: Overview of included locations. 3 Ribbon to include new forms, delete forms or save information.

Print screen 15. Input form 'RMM'. 1; Ribbon to scroll between different locations. 2: Ribbon to scroll between different RMMs and some other options. 3 Ribbon to include new forms, delete forms or save information. 4: Possibility to include additional activities. 5: Sub forms 'Ventilation', 'Local control' and 'Indoor condition'. 6: Overview of included RMM

Print screen 16. Sub form RMM – Ventilation. 1: List of RMM.

Print screen 17. Sub form RMM – Local control. 1: Buttons to add or delete a local control. 2: Overview of saved local controls 3: List of RMM.

Print screen 18. Sub form RMM – Indoor conditions. 1: List of RMM.

Print screen 19. Input form 'worker'. 1: Ribbon to scroll between different workers and some other options. 2: List of workers.

Print screen 20. By clicking on the magnifier behind 'ISCO Job code' in print screen 19 you open a coding list form SVZ-ISCO. At the beginning you see major divisions. By clicking on the plus icons you will come to more detailed descriptions. Please be as specific as possible.

Print screen 21. Input form 'Expos and PPE'. 1: Ribbon to scroll between different workers and the activities for each worker and some other options. 2: List of workers and the use of PPE for each activity. 3: Possibility to include additional activities.

Print screen 22. Input form 'Material'. 1: Ribbon to scroll between different materials and some other options. 2: Button to include ingredients, linked to the selected material. 3: Overview of included materials and ingredients.

Print screen 23. Input form 'Material' sub form 'Ingredients'. 1: Ribbon to scroll between different ingredients and some other options. 2: Overview of included materials and ingredients.

Print screen 24. Input form 'Material used rate'. 1: Ribbon to scroll between different use rates. 2: Ribbon to add, delete and change information for the used materials. 3: Overview of included used materials. 4: Possibility to include additional activities.

Print screen 25. Input form 'Sample information'. 1: Ribbon to scroll between samples and some other options. 2: Overview of included samples.

Print screen 26. By clicking on the magnifier behind 'Device ID' you open a list of devices used in your institute.

Print screen 27. By clicking on the magnifier behind 'Collection media' you open a list of collection media.

Print screen 28. Input form 'Sample link'. 1: Ribbon to scroll between samples and some other options. 2: Overview of included samples.

Print screen 29. Input form 'Analytical results'. 1: Ribbon to scroll between samples. 2: Button to include measurement results. 3: Icon to upload measurement data.

Print screen 30. Overview of elements, chemical compounds, dust fraction, fibers, particles and type of analyse technique of which a selection could be made.

Print screen 31. Input form 'Sample link'. 1: Ribbon to scroll between samples. 2: Button to include measurement results. 3: Input fields for measurement data. 4: Icon to upload measurement data.

Print screen 32. Overview of analytical techniques. Use this screen to select the used technique.

Print screen 33. Example of input form 'Import raw data' in case in sample information the use of a SMPS and APS is indicated. 1. Possibility to upload data or delete data. 2. Button to set the values for the raw dataset.

9   Overview of tables

Table 1. Fields and their explanations to be filled in for 'User profile'.

Table 2. Fields and their explanations to be filled in for 'Change question answer'.

Table 3. Fields and their explanations to be filled in for 'New password'.

Table 4. Description of the different icons and their function in NECID.

Table 5. Fields and their explanations to be filled in for 'Measurement series'.

Table 6. Fields and their explanations to be filled in for 'Activity'.

Table 7. Fields and their explanations to be filled in for 'Second source'.

Table 8. Fields and their explanations to be filled in for 'Premises'.

Table 9. Fields and their explanations to be filled in for 'Locations'.

Table 10. Fields and their explanations to be filled in for 'RMM'.

Table 11. Fields and their explanations to be filled in for RMM – sub form 'Ventilation'.

Table 12. Fields and their explanations to be filled in for RMM – sub form 'Local control'.

Table 13. Fields and their explanations to be filled in for RMM – sub form 'Indoor conditions'.

Table 14. Fields and their explanations to be filled in for 'Worker'.

Table 15. Fields and their explanations to be filled in for input form 'Expos and PPE'.

Table 16. Fields and their explanations to be filled in for input form 'Material'.

Table 17. Fields and their explanations to be filled in for input sub form 'Ingredients'.

Table 18. Fields and their explanations to be filled in for input form 'Material used rate'.

Table 19. Fields and their explanations to be filled in for input form 'Sample information.

Table 20. Fields and their explanations to be filled in for input form 'Sample link'.

Table 21. Fields and their explanations to be filled in for input form 'Analytical results'.