KERN & Sohn GmbH
Ziegelei 1
D-72336 Balingen
E-Mail: info@kern-sohn.com
Tel: +49-[0]7433- 9933-0
Fax: +49-[0]7433-9933-149
Internet: www.kern-sohn.com

Operating Instructions
KERN EasyTouch

Easy Touch Density
User manual

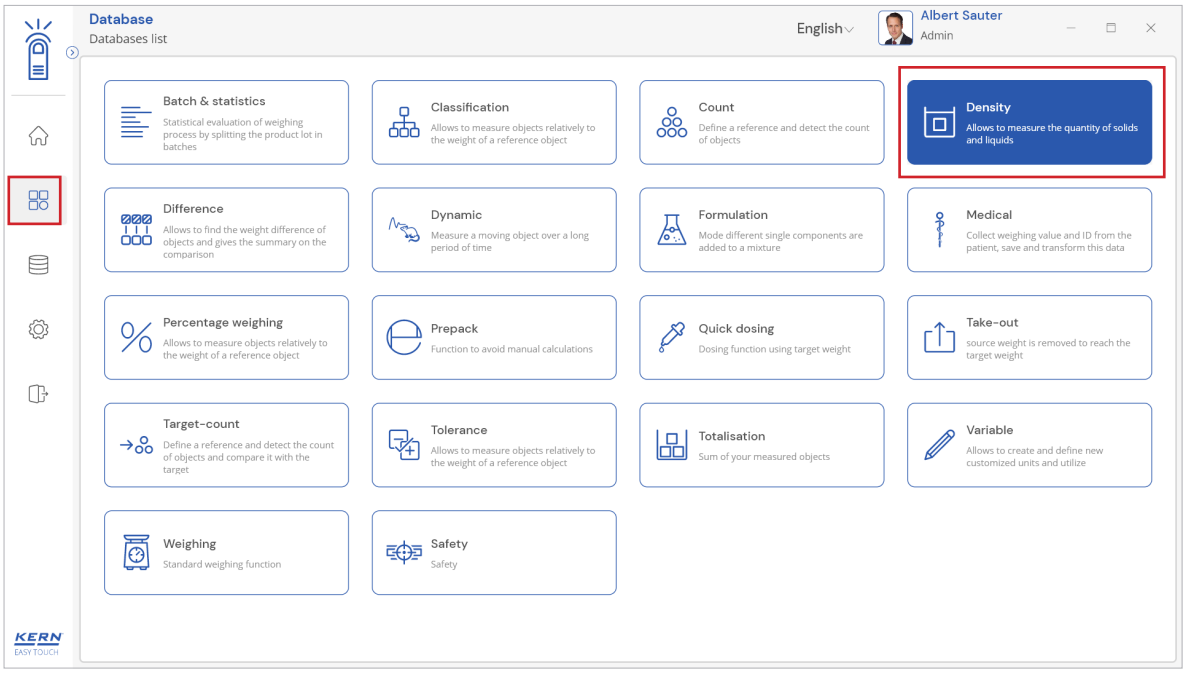
Version 1.1
2022-09
GB

Contents

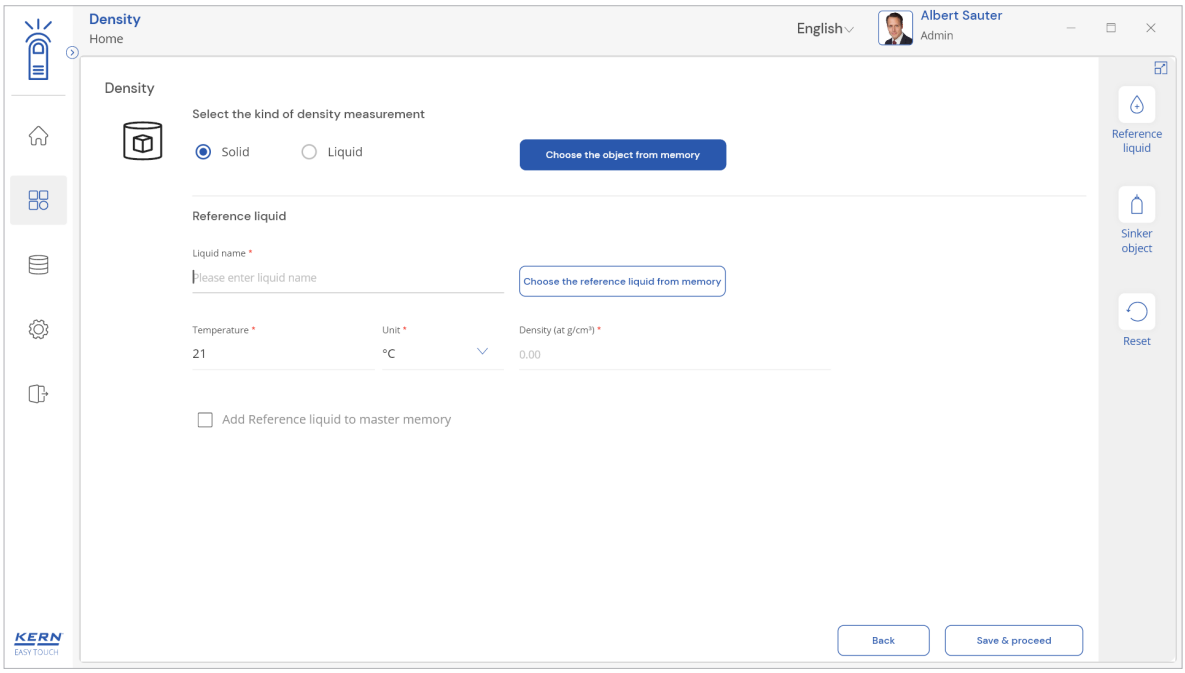
1.0 Introduction to density

The density function allows the professional determination of the density of solid matter and liquids according to the gravimetric-Archimedean principle by weighing activities in air and in a reference liquid.

- Click on the function menu from the main menu.



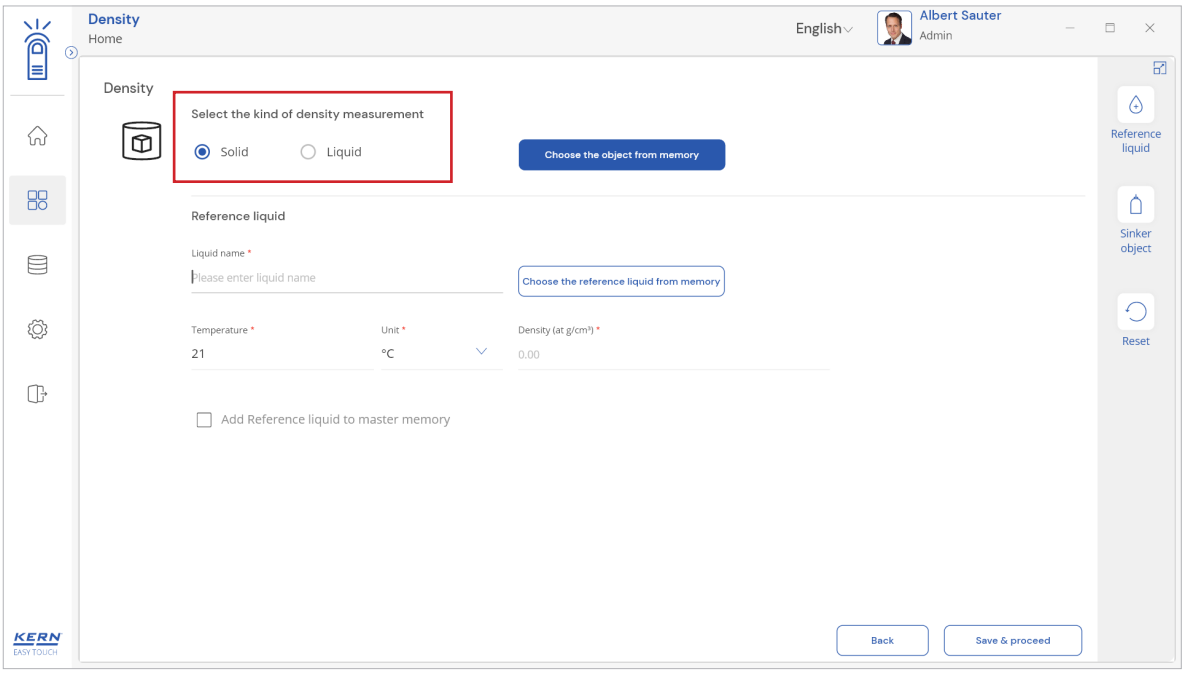
- The function list screen will open. Click on the density function from the functions list.
- The main screen of the function appears,



2.0 Functional features

User can pick either of the options solid or liquid based on the object what is required to be

find density.

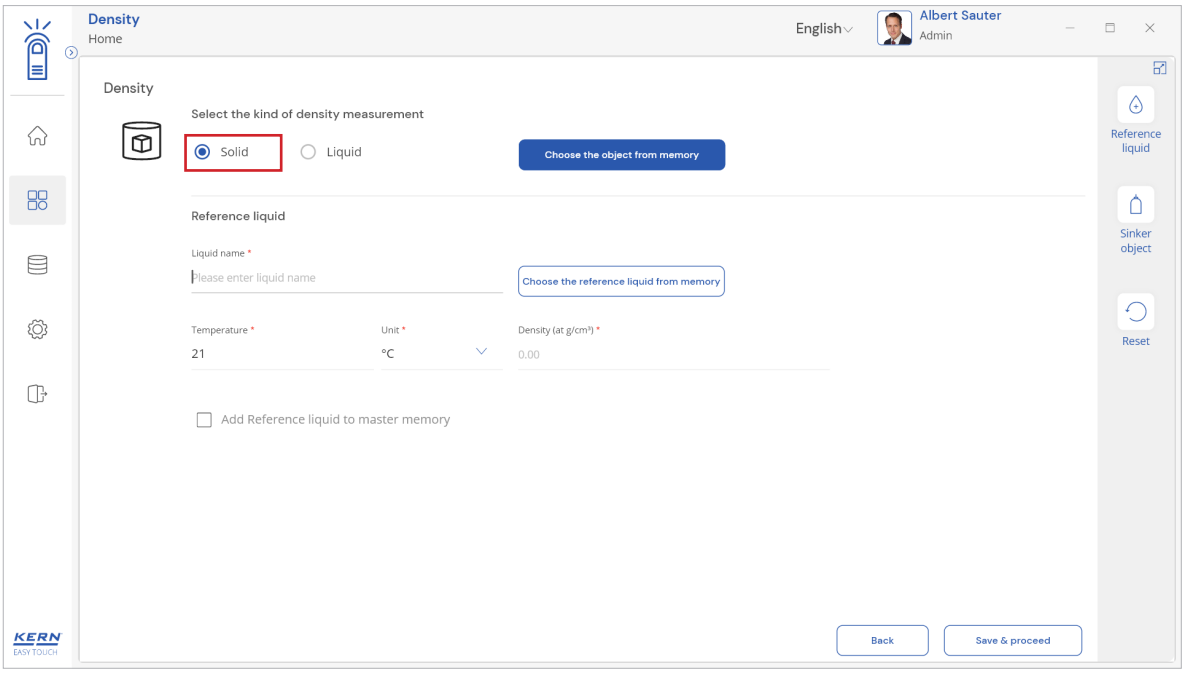


3.0 Determine the density of solid matter

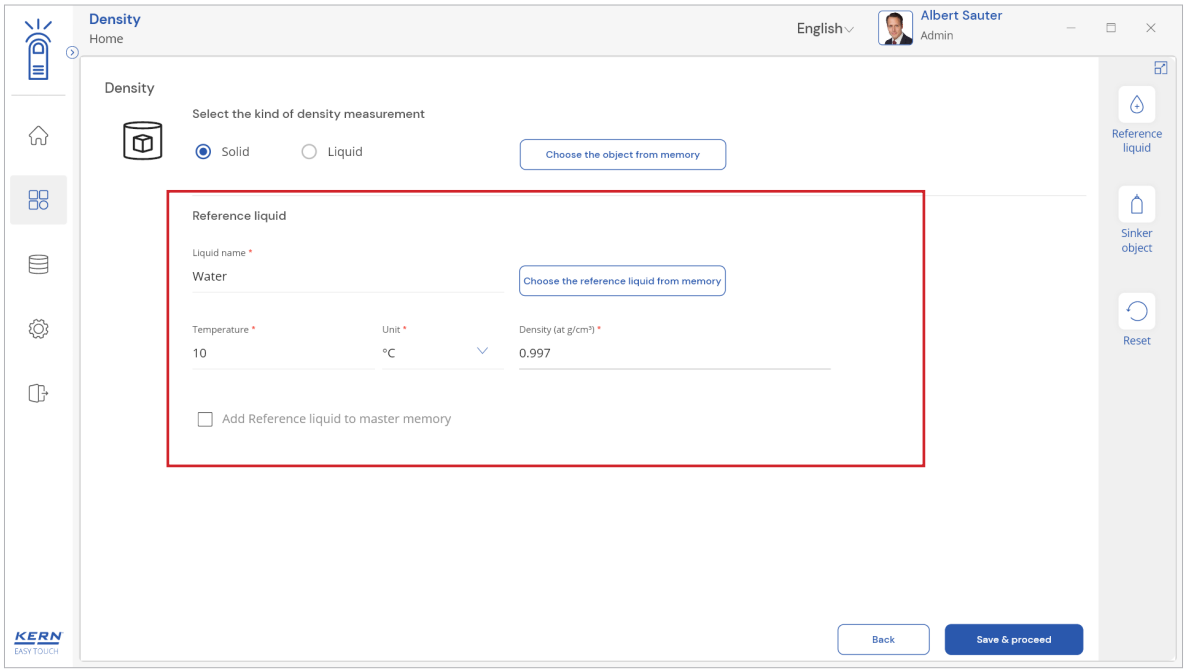
The start screen for density determination appears where you can define the type of object for which the density has to be determined.

3.1 Defining the reference liquid

- Click on the “solid” option in the screen to measure the density of solid.
- The below fields appear for the users allowing them to enter the new reference liquid details as such the “reference liquid name”, temperature” and “density”.



- Now you can fill in the following details to create a new reference liquid.



Reference liquid name

The user can enter a reference fluid name for the fluid in which the object has to be measured.

Temperature

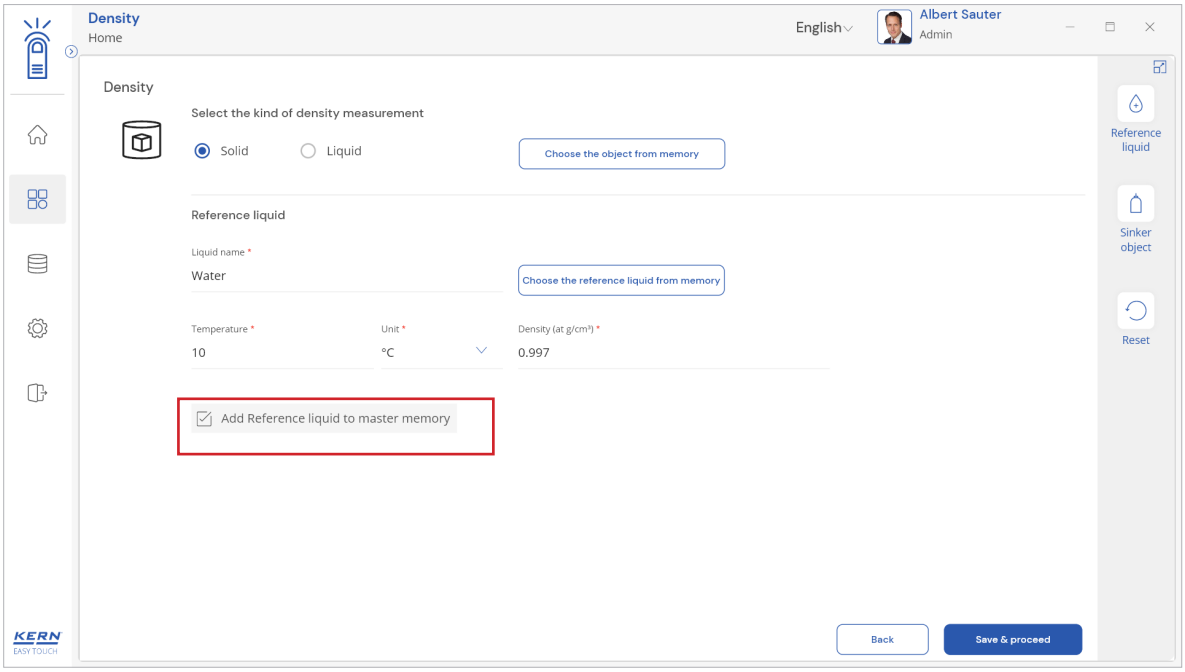
User can define the temperature of the reference liquid. User can define various temperature to the single reference liquid.

Density

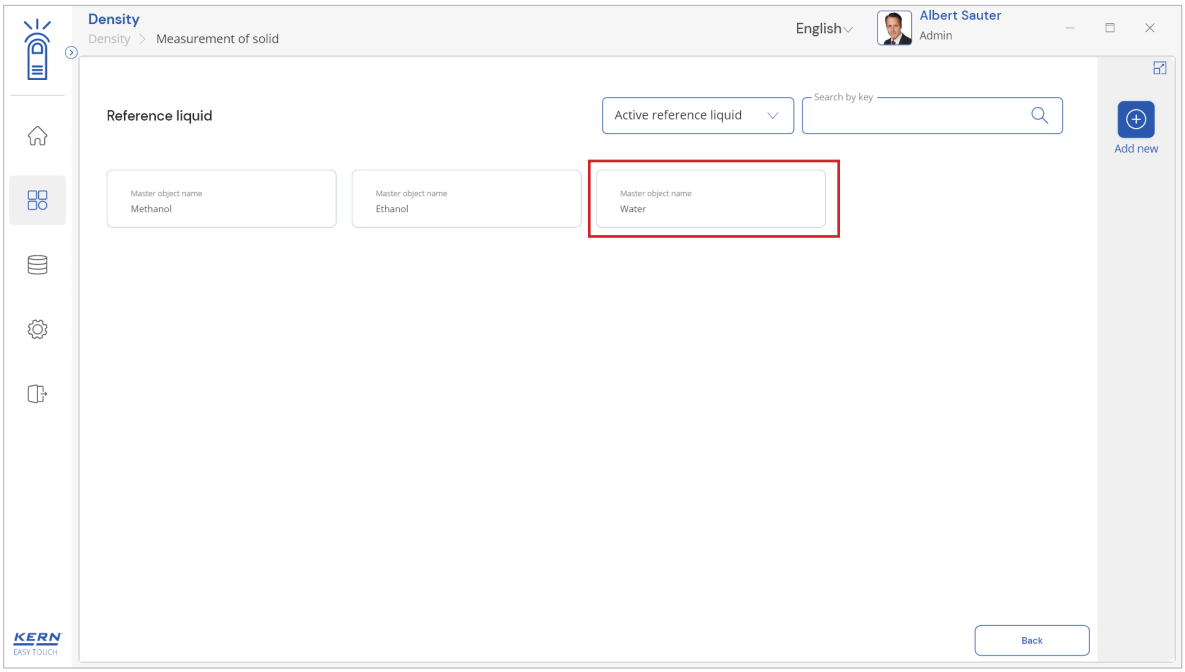
The user can define the density of the reference liquid. User might be able to define the density according to the temperature of reference liquid. User will have the provision to add multiple density aligning with temperatures to a single reference liquid.

3.2 Add reference liquid to master memory:

This allows you to save the created reference liquid in master memory and it can be reused in the density function.

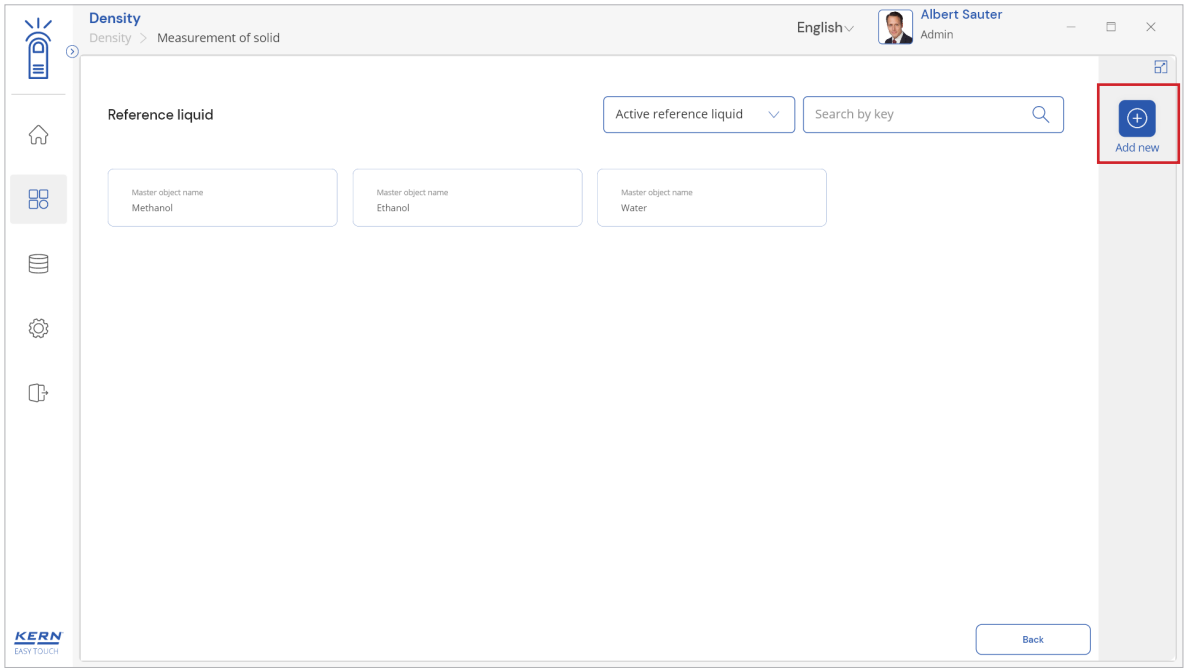


- If you enter all the mandatory fields, then “add reference liquid to master memory” will be enabled and upon selecting it, the data will be saved in the master memory and it can be reused any time in the density function.

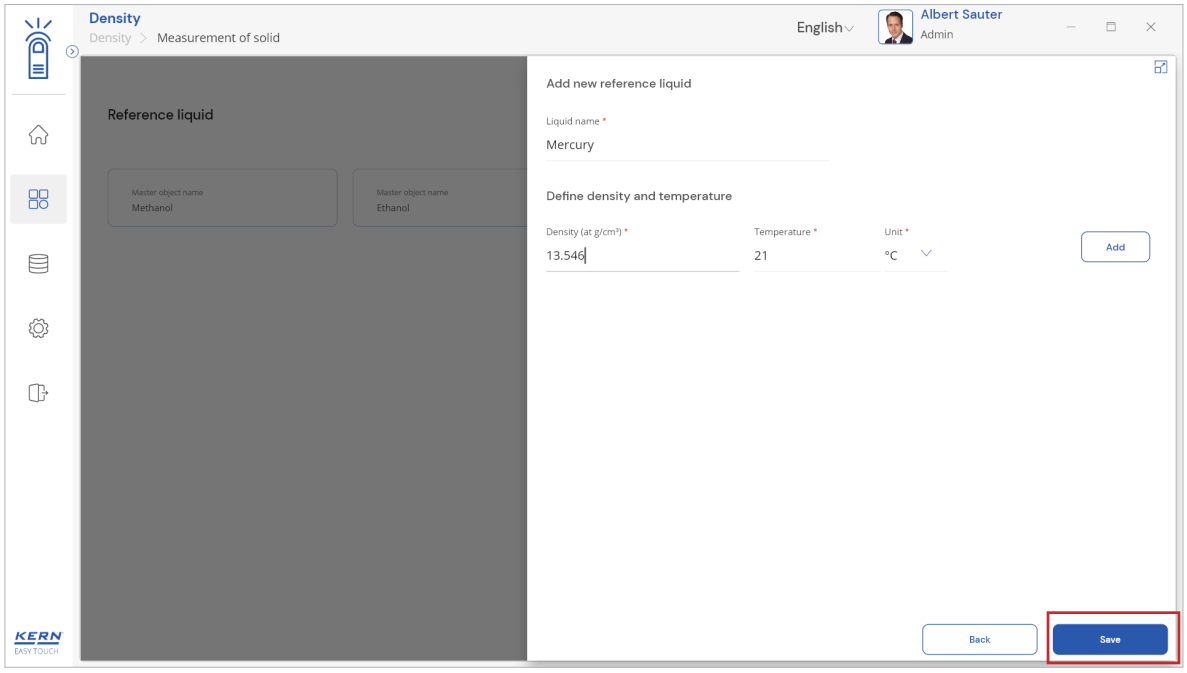


3.2.1 Adding the reference liquid in master memory

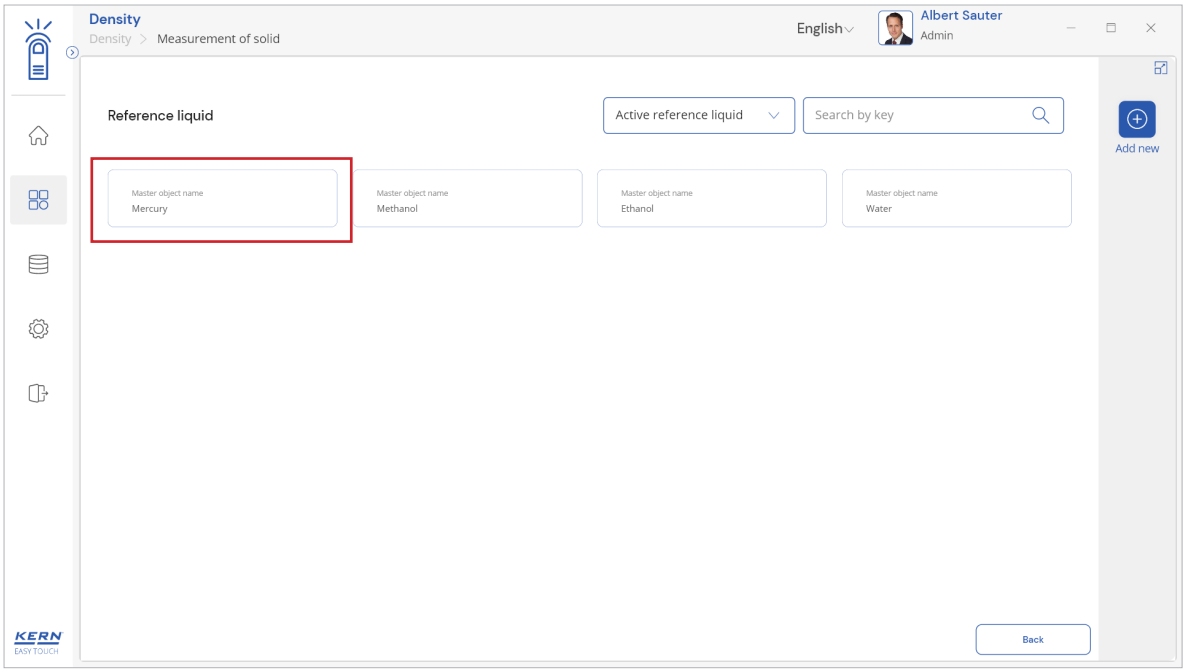
- Choose the “reference liquid icon” will redirect to the screen where the user can add the various reference liquids used for finding the density of solid object.



- Click on the “add new” and enter the liquid name, density and temperature. User will having the provision to define multiple densities in alignment with the temperature as we all know the liquids density varies with the temperature.



- Click on save to save your reference liquid after your addition of temperature and its respective densities.

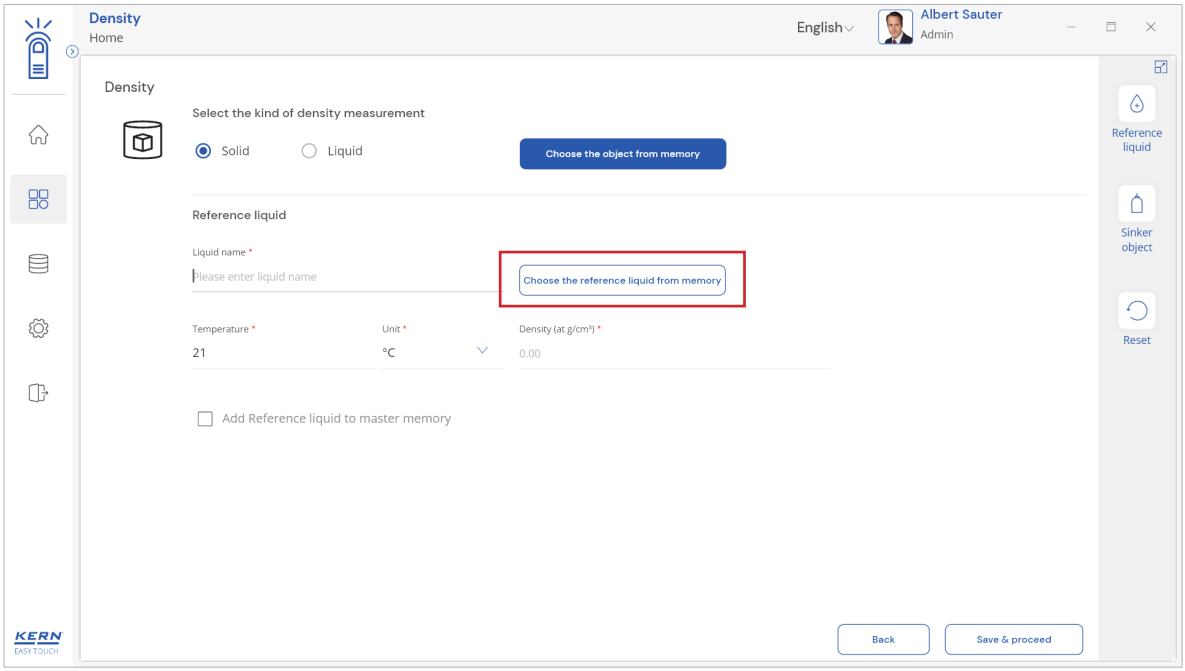


- The data will get saved and is contributed for reuse

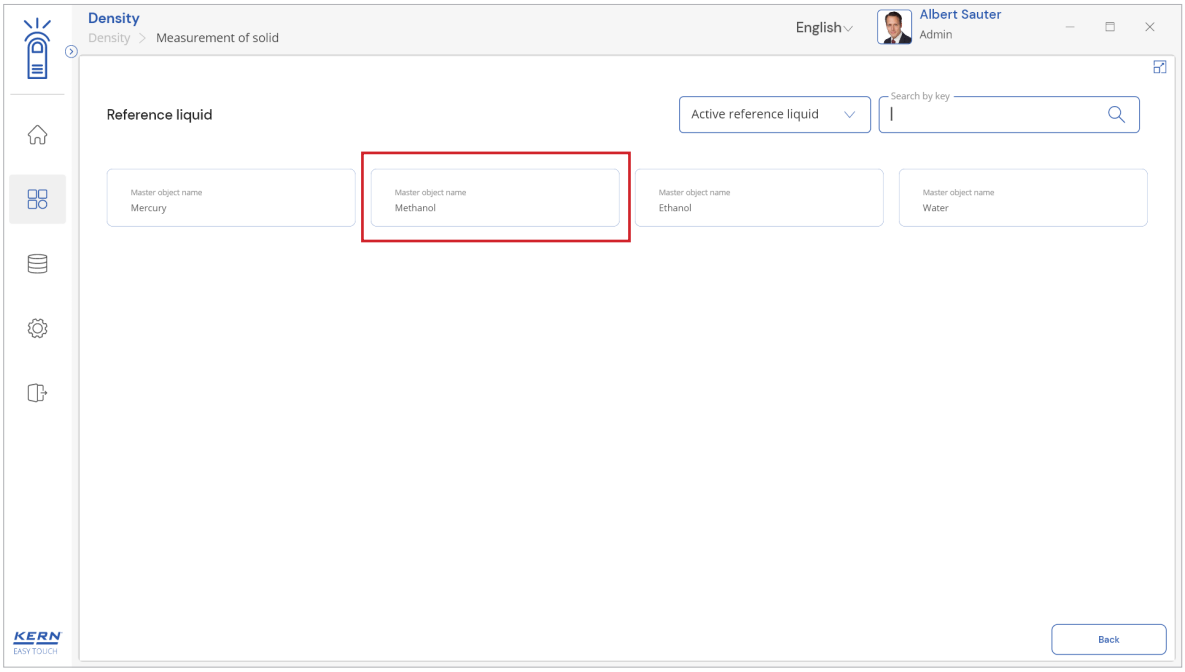
3.3 Utilizing the added reference liquid from memory

The user might be able to pick the reference liquid from the memory where the user has predefined the list of reference liquids and its properties what used frequently.
The reference liquid in the memory can be reutilized.

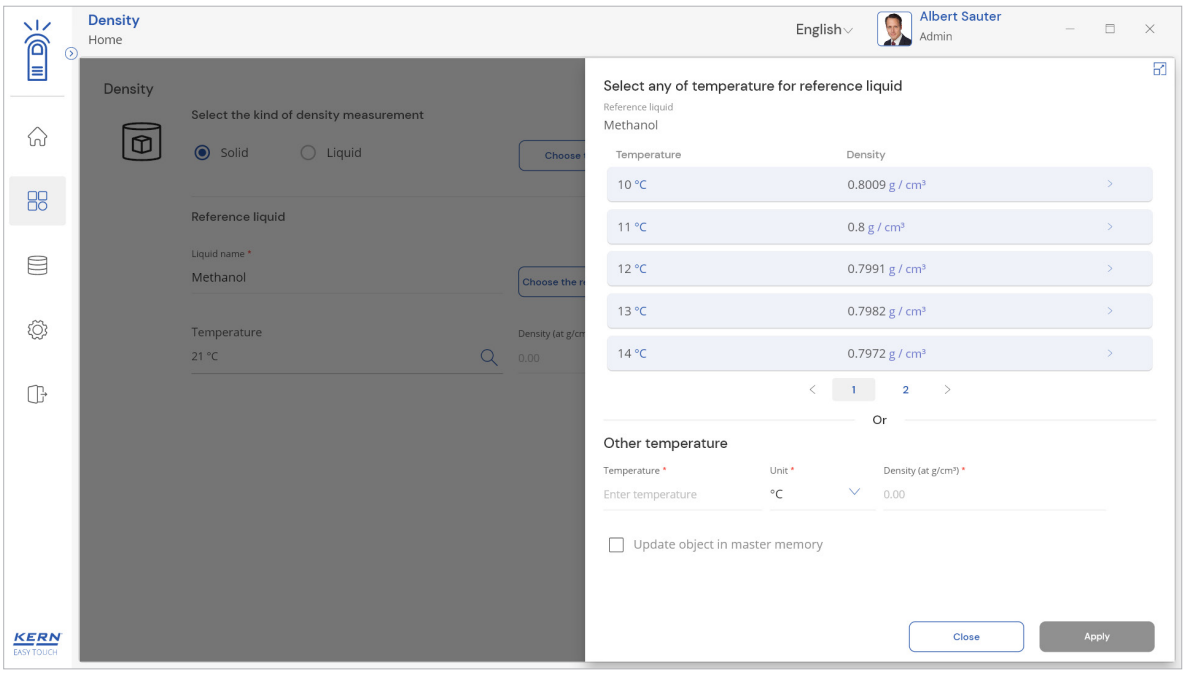
- Redirect to the home screen and now choose the weighing object type as “solid”.



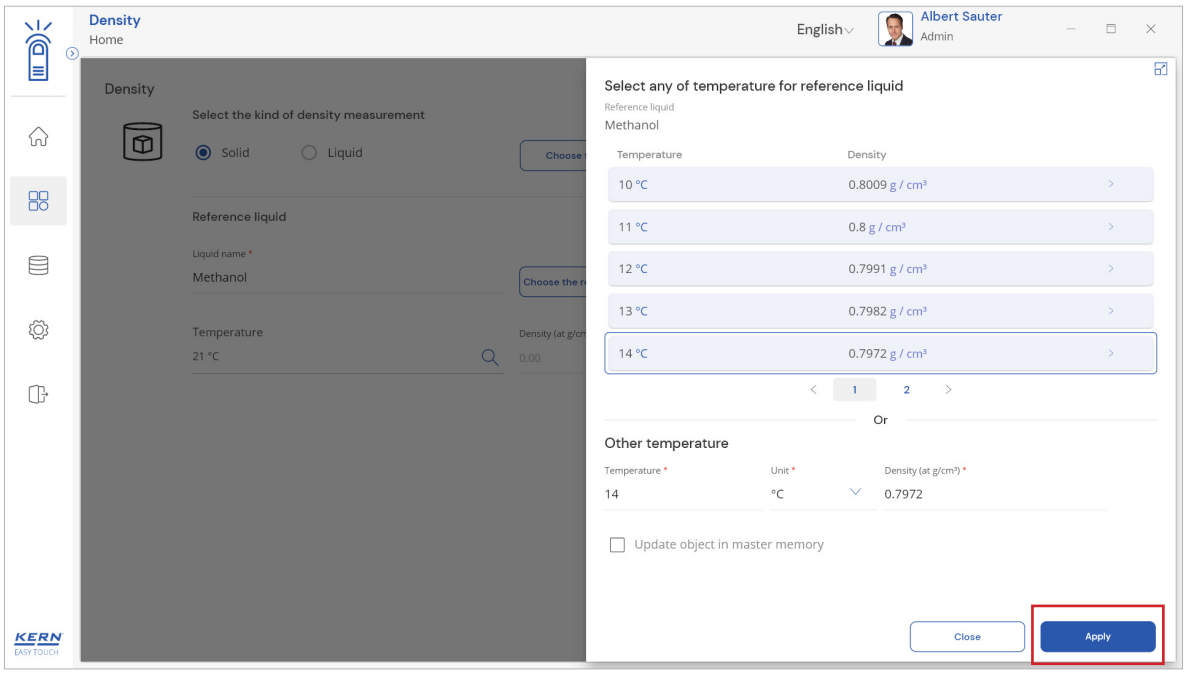
- Now, click on “choose the reference liquid from memory”, you will be redirected to the screen where you can select the reference liquid from the master memory.



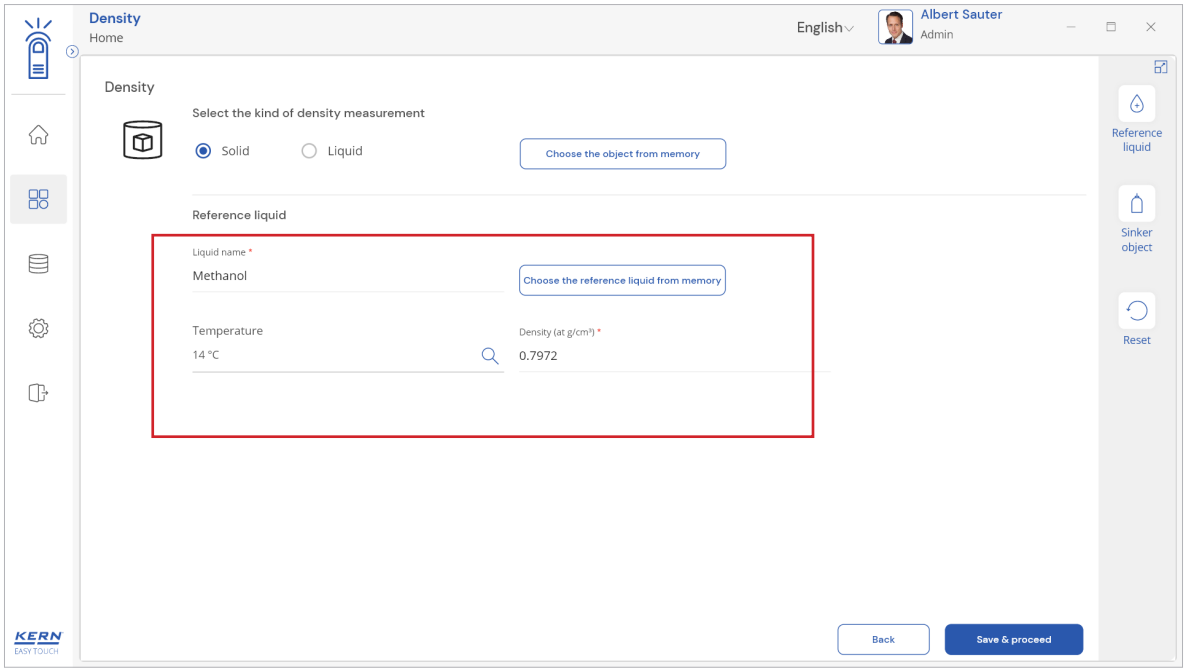
- User will be provided with the search option to search the required weighing object.
- User will be redirected to the predefined list where the user can choose the respective temperature and density.



- Select the temperature of reference liquid from the list of temperatures which are already defined in the reference liquid or input new values for temperature and density and proceed



- The reference liquids and its respective properties would be auto populated so the user might start finding the density by clicking on the “apply”

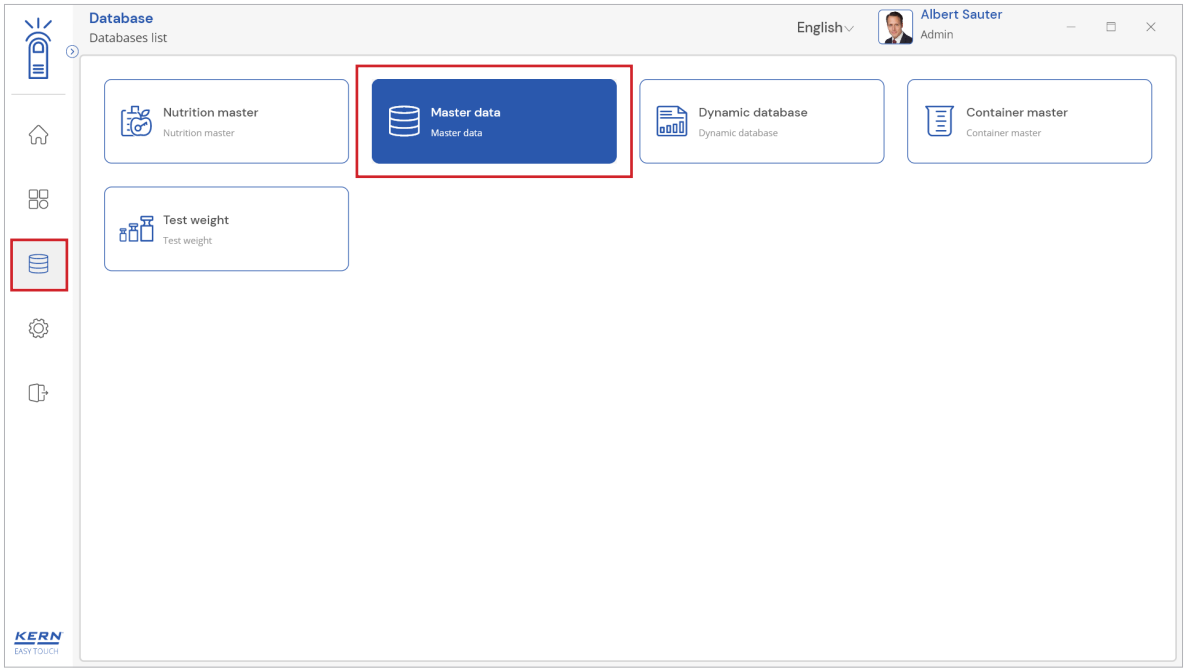


3.4 Master memory

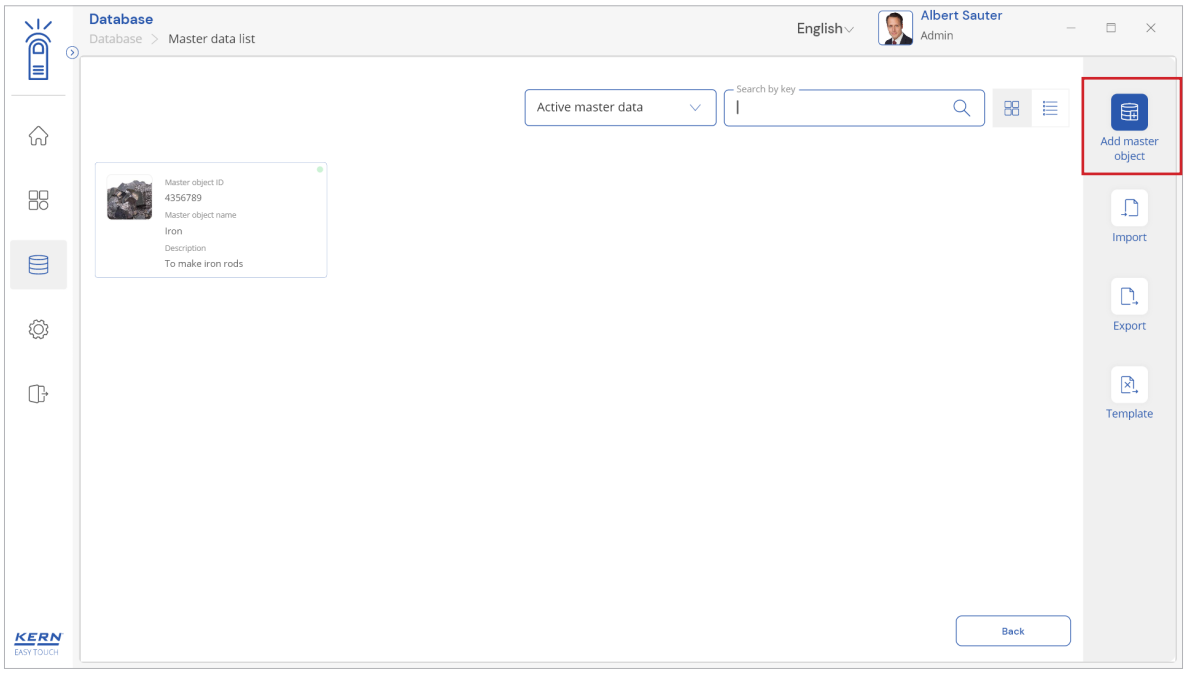
The user might be able to pick an object from the memory where the user can predefine list of objects what is used frequently. The object in the memory can be reutilized.

Steps to be followed to create a master data with functional properties

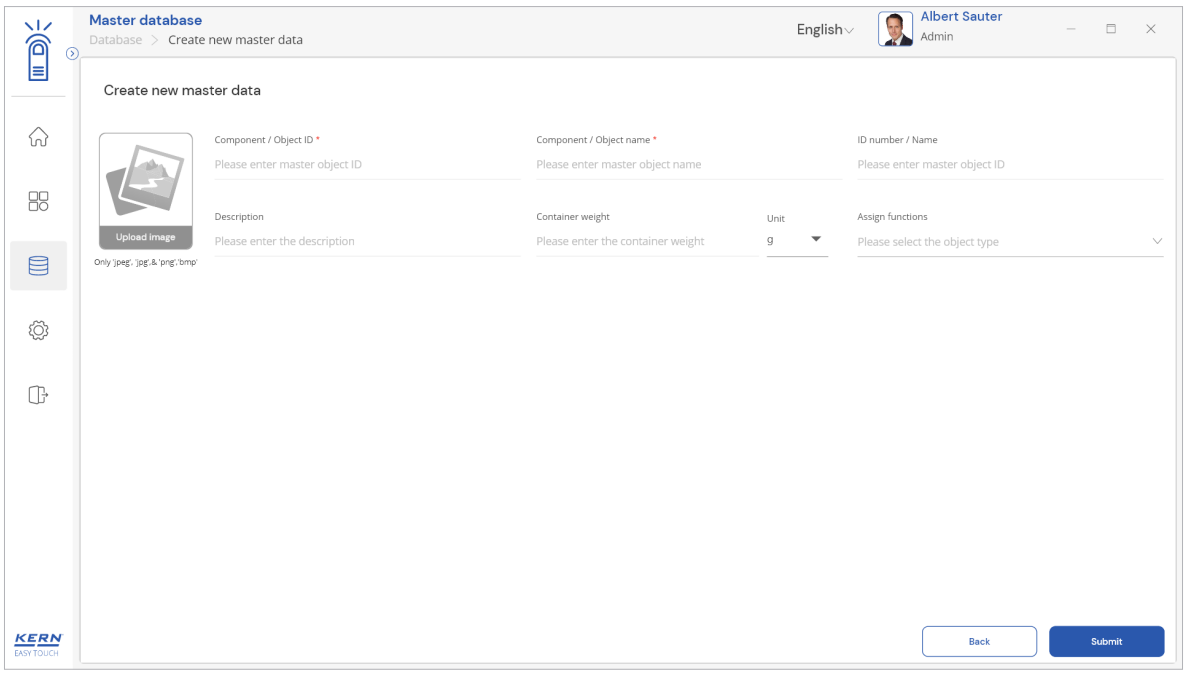
- Click on the database icon and redirect to the master data.



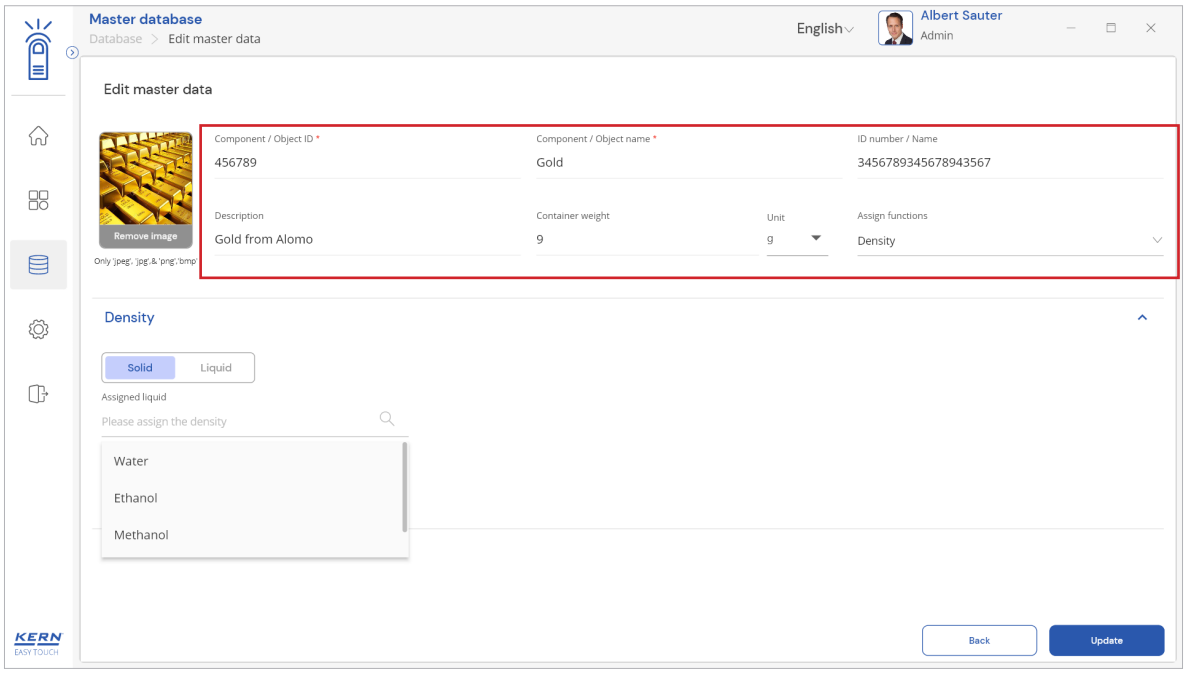
- The below screen would be displayed. The user might be able to see the list of master data objects created here.



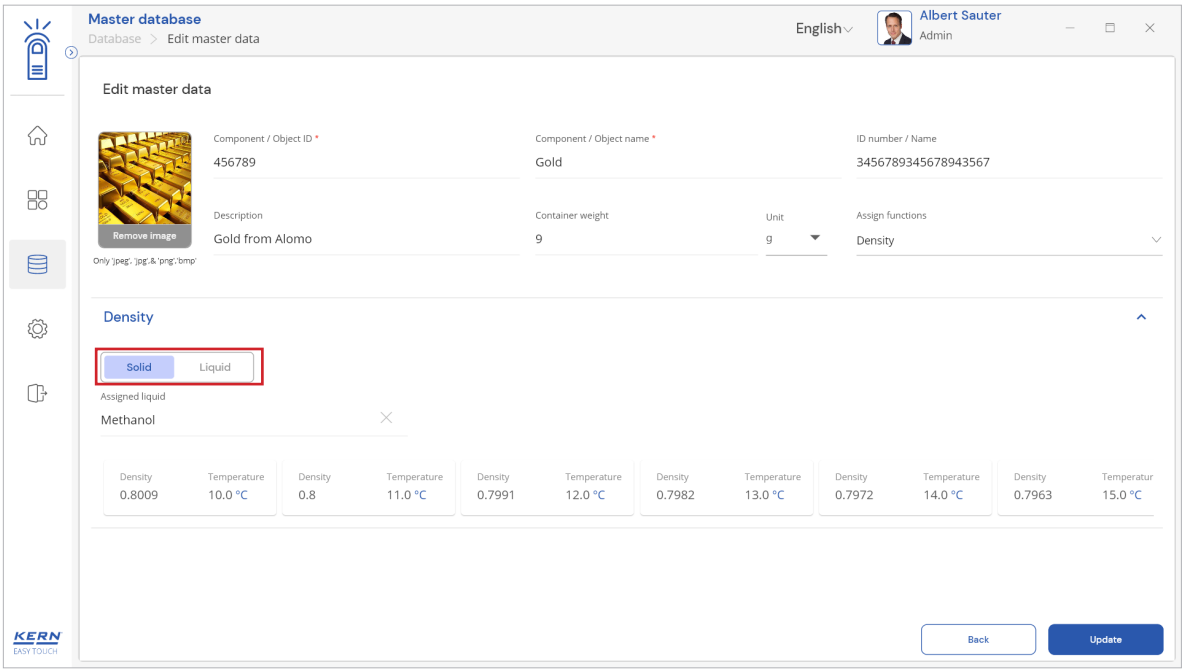
- The user can click on the “add master object” to create a new master object.



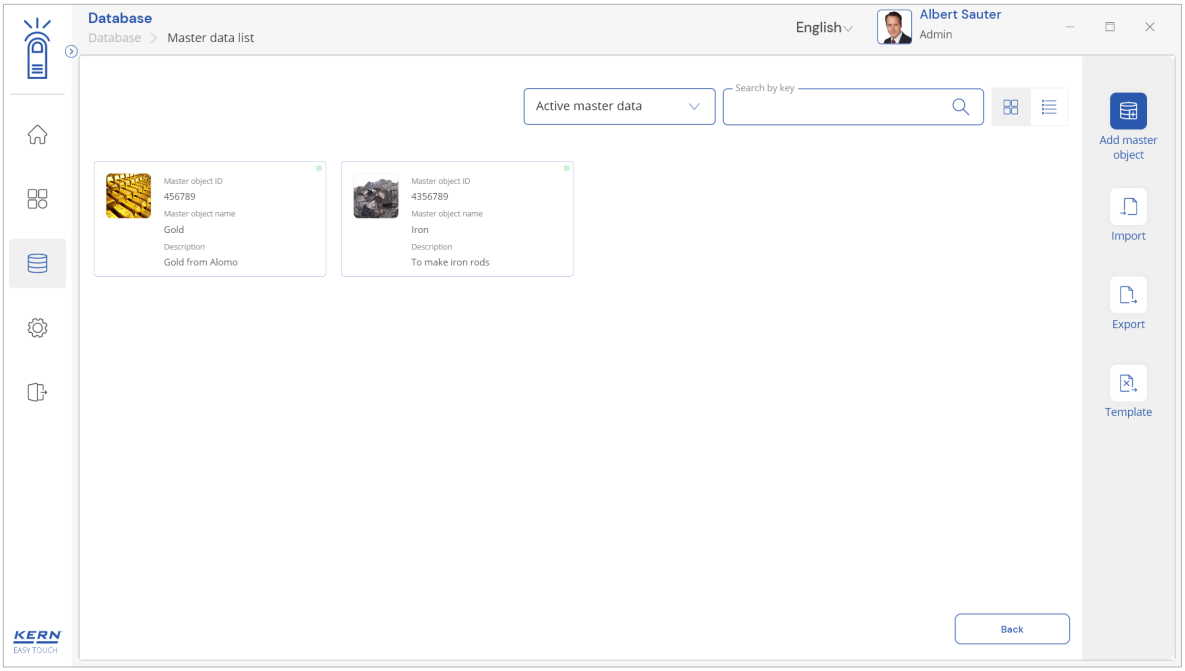
- The user can fill in the information as such component / object ID, Component / object name, ID number / name, description, container weight and the image for the reference.
- Now user can select the required function “density” to utilize the properties.



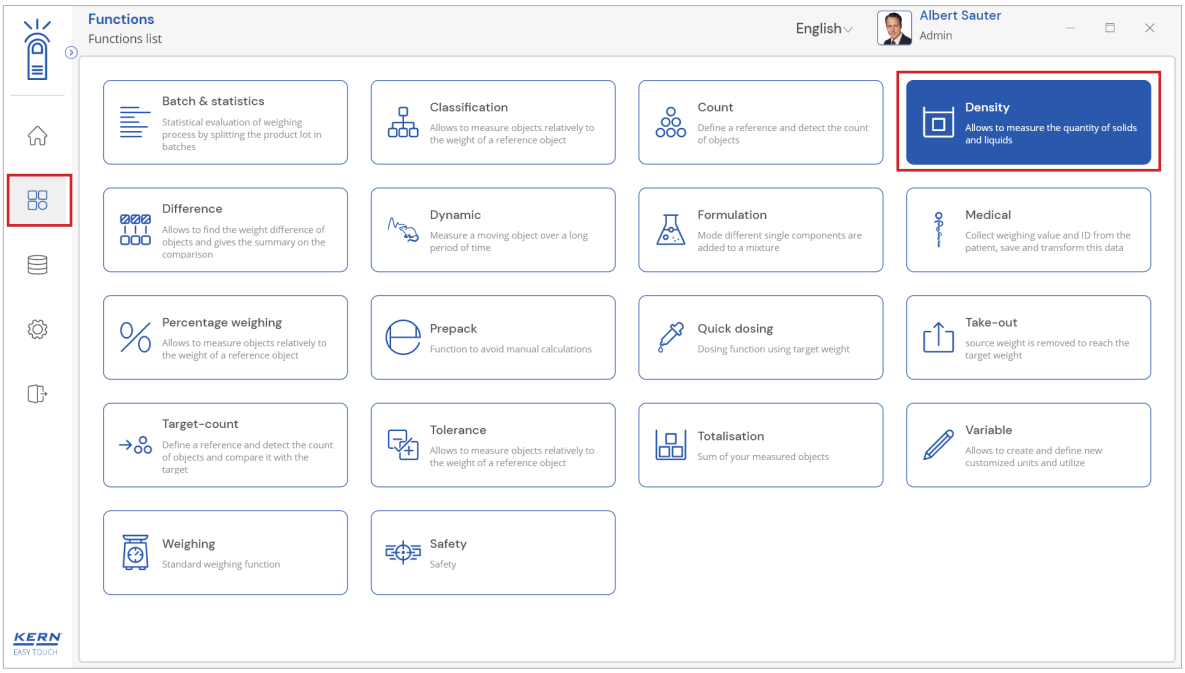
- Upon clicking the function, the functional properties would be displayed. Please choose the object type as “solid”.



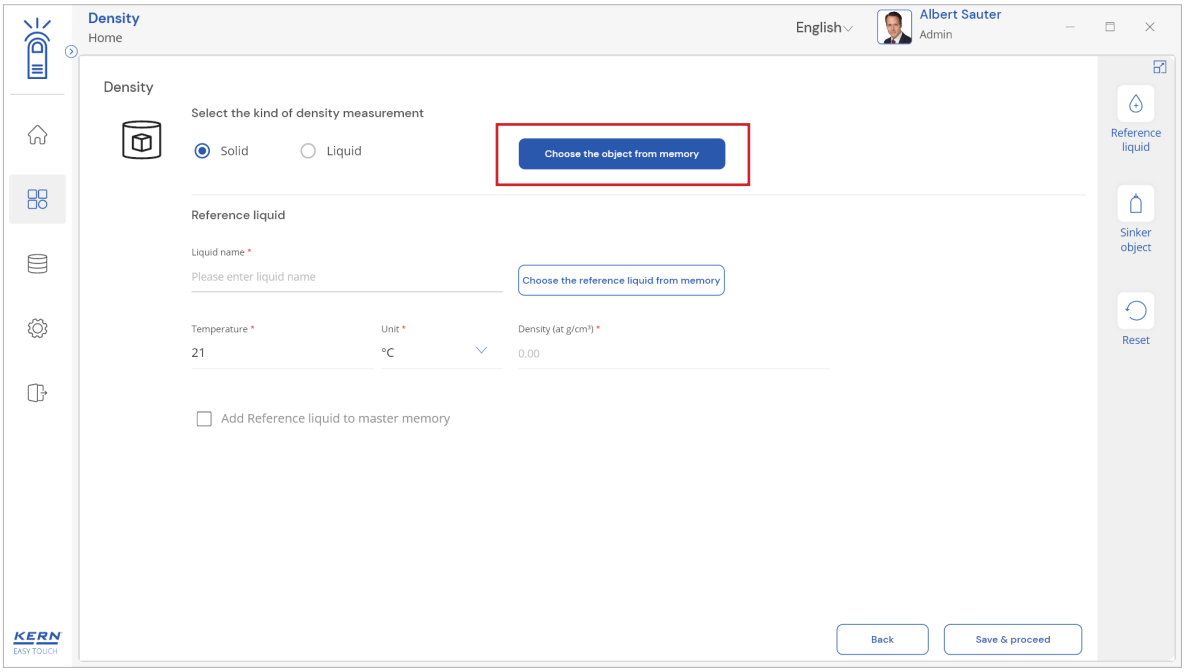
- User can choose the respective reference liquid and click on submit to save the master object.
- The master object data is being saved and user could be able to view the created master object in the master list.



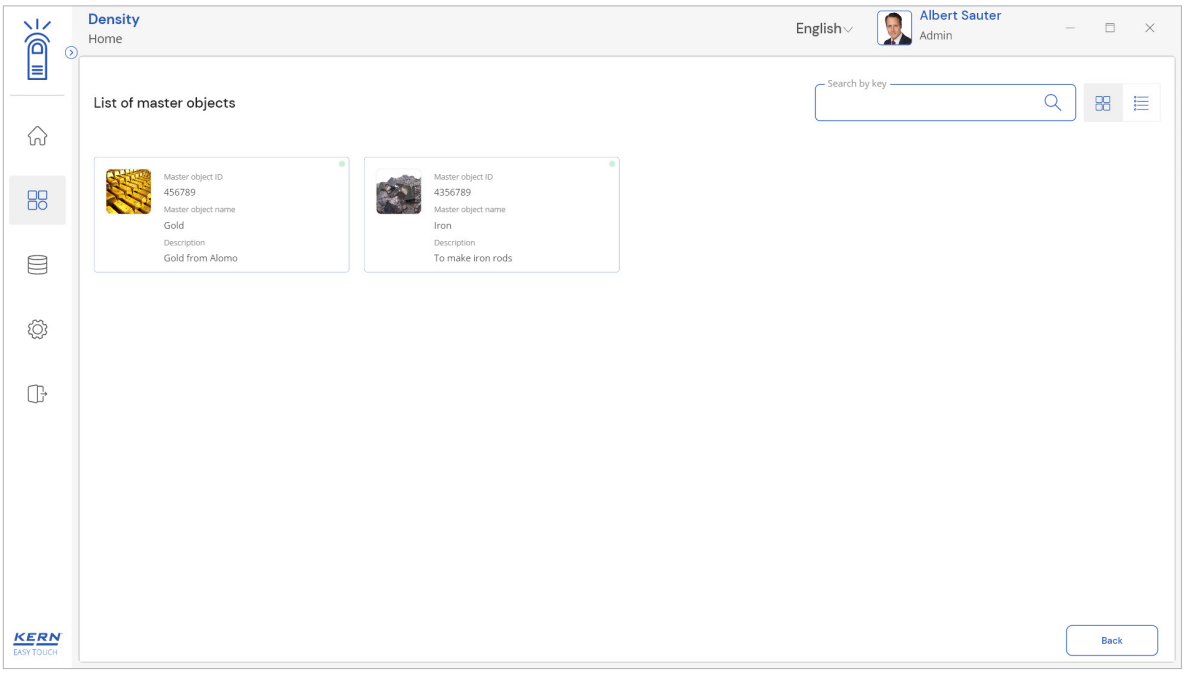
- Now redirect to the function “density” to utilize the created master data



- The user can be able to pick an object from the memory what is going to be measured. Master memory is the place where the user can predefine list of objects what is being used frequently. The object in the memory can be reutilized for any number of determinations.

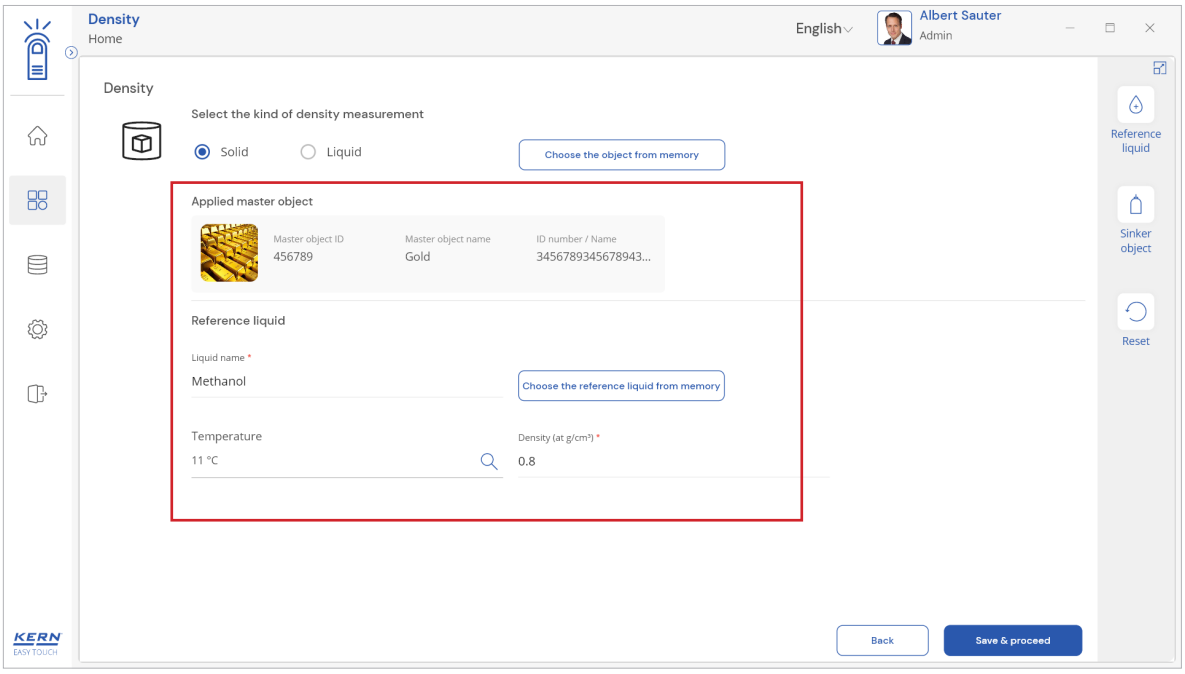


- Click on the memory and the user will be taken to the master memory to pick from the list of objects predefined. User can click on the required object to be weighed.



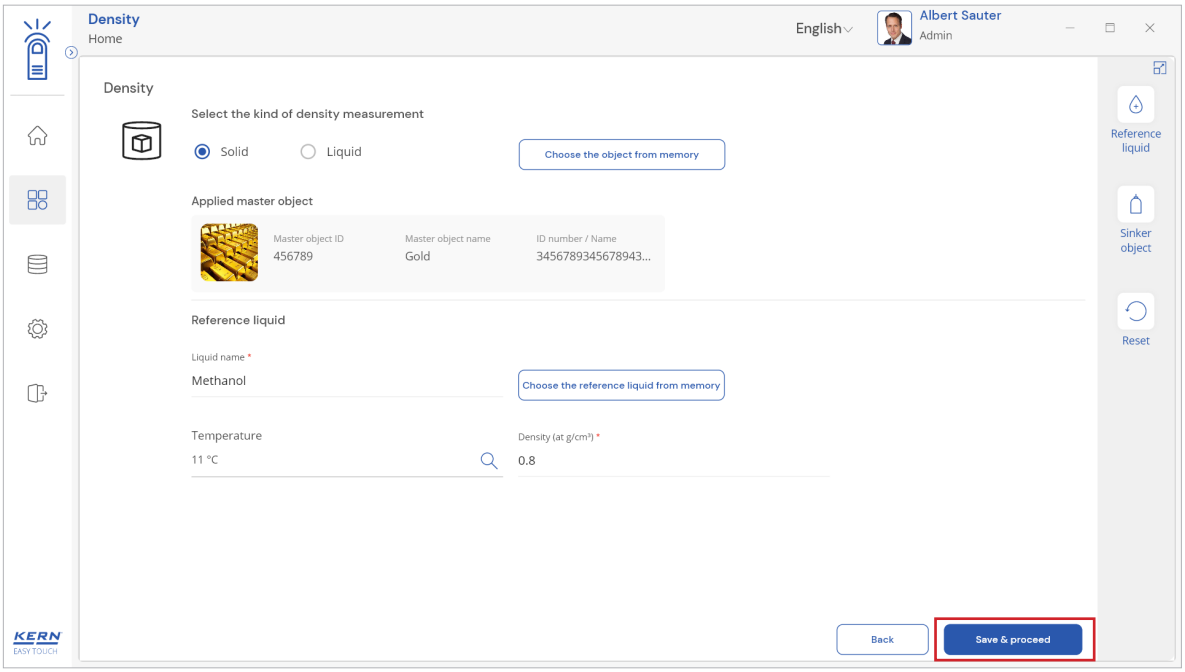
- User will be provided with the search option to search the required weighing object.
- User will be redirected to the previous screen upon clicking the required object and all the details would be auto populated.

Note: User will be displayed with the screen to choose the temperature and density of the reference liquid in case if the reference liquid is consisting of more than one density.



3.5 Finding the density

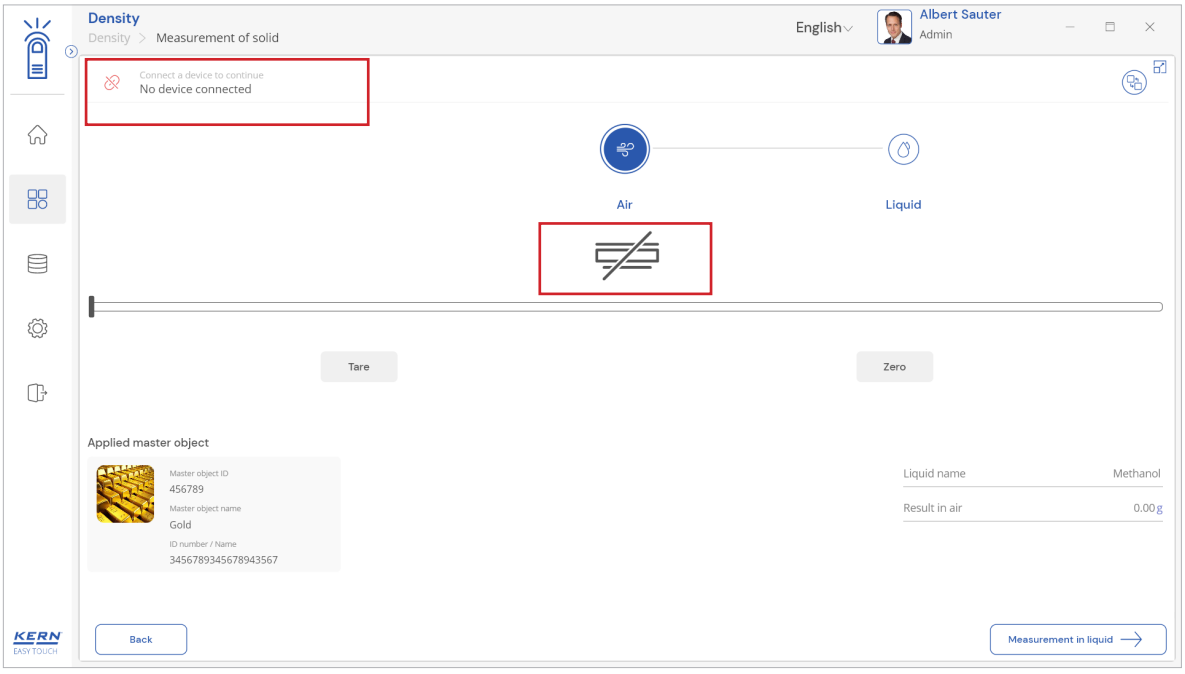
Once the temperature and the density are defined click on the “save and proceed” button to proceed further.



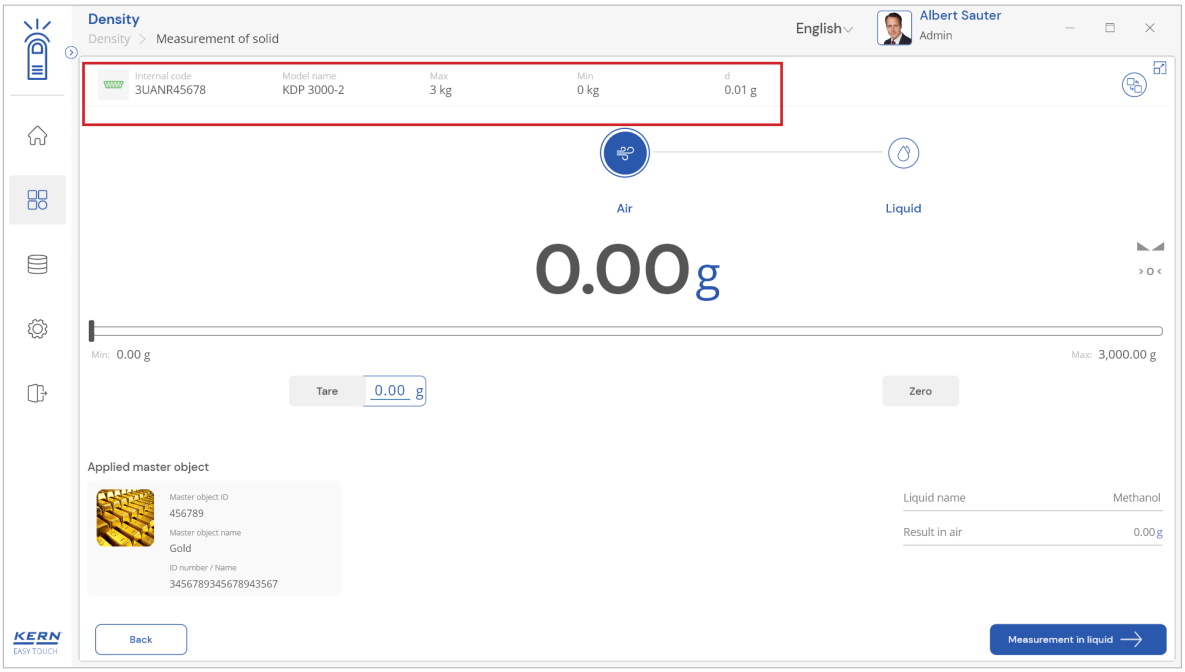
Device features

The device features can be utilized upon connecting the device with the weighing scale.

- Indication of “no device being connected” will be displayed.

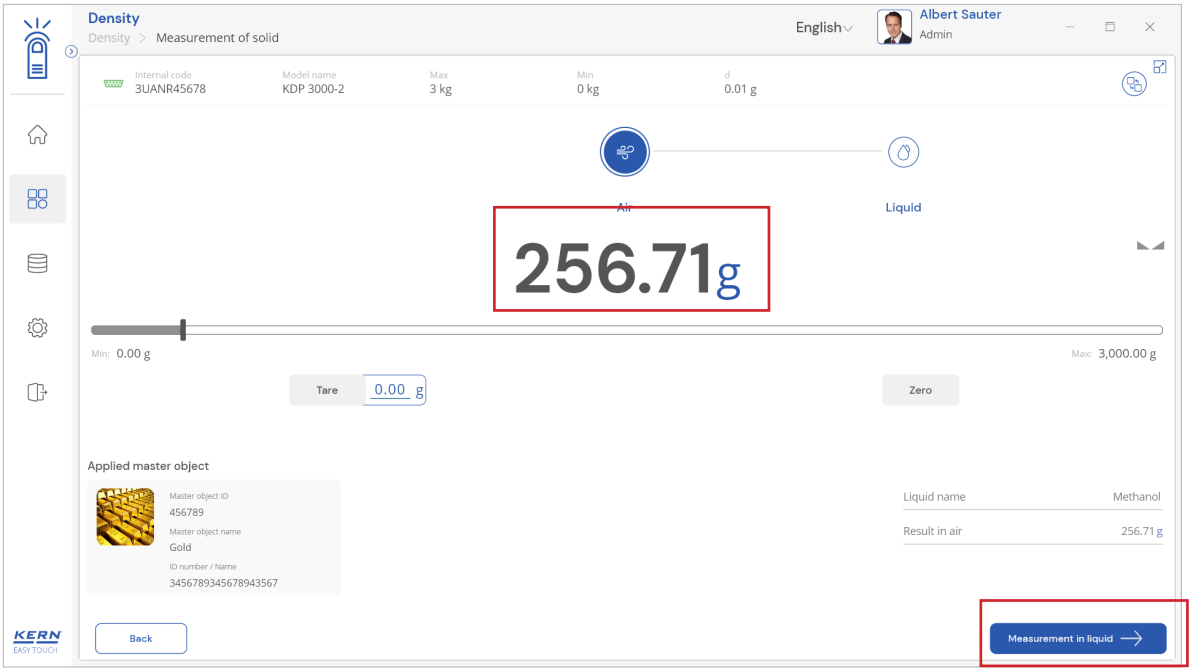


- The provision to minimize and maximize were also being given in the upper right corner of the screen to get a full view mode
- Now connect a device to proceed with weighing of an object by clicking on the “connect a device to continue”
- Connect a device which is physically connected to the system and now the weighing mode is activated, and screen looks as per the below.



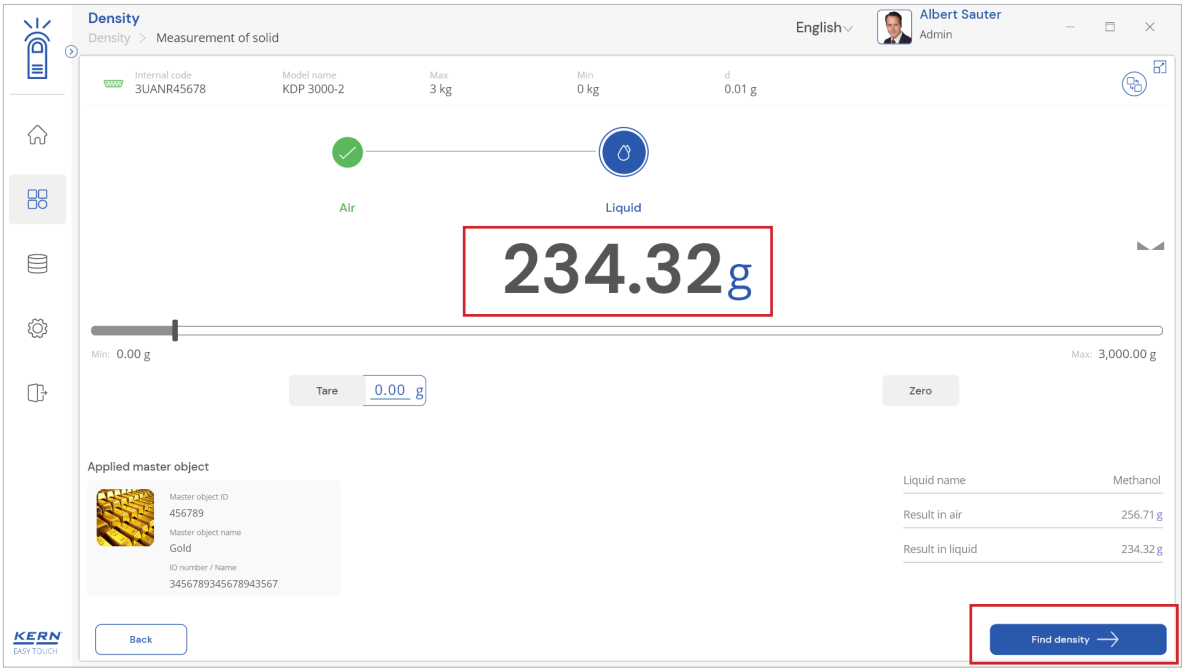
Start measurement in air

Place the required object in the weighing scale and after stabilization, then click on "measurement in liquid" to save the weight of the object measured in air and then to proceed measuring the object in the reference liquid.



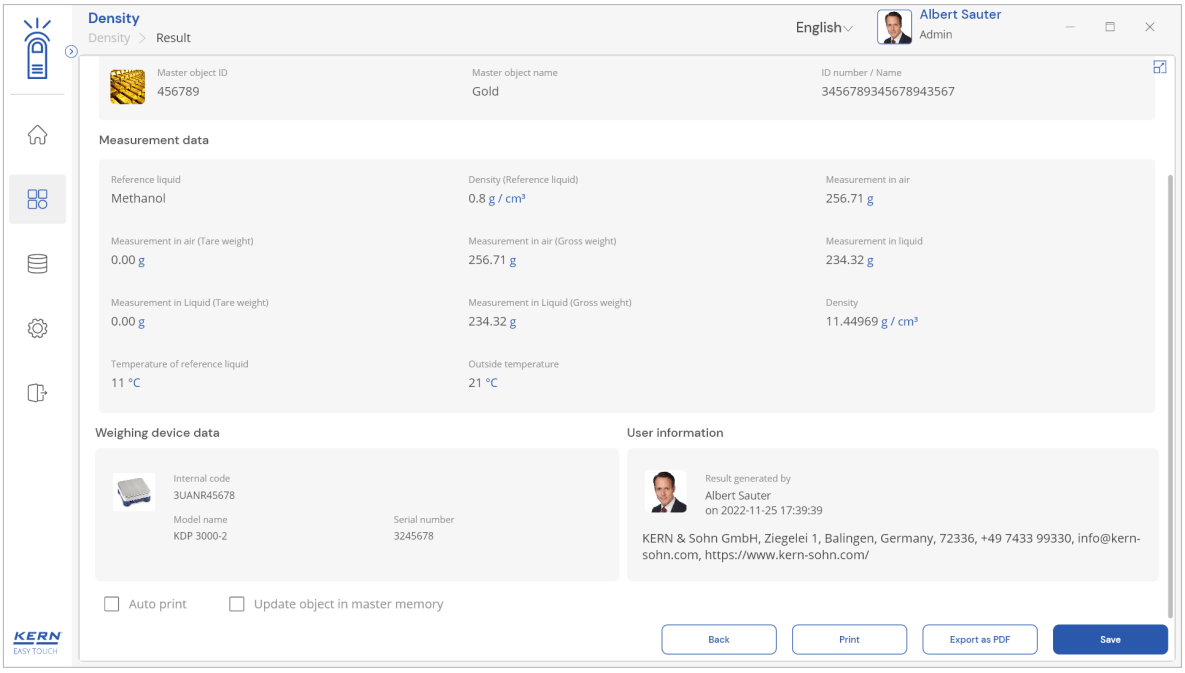
Measurement in liquid

Upon clicking the measurement in liquid you will be taken to the screen where you can measure the object immersing in the reference liquid.
Here in this screen the net weight of the object in the reference liquid is captured.
The user should then click on “density” to view the density of the object



Calculate density

The density value is calculated based on the density of the reference liquid and the net weight of object in air and liquid based on the gravimetric-Archimedean principle and displayed in the result screen.



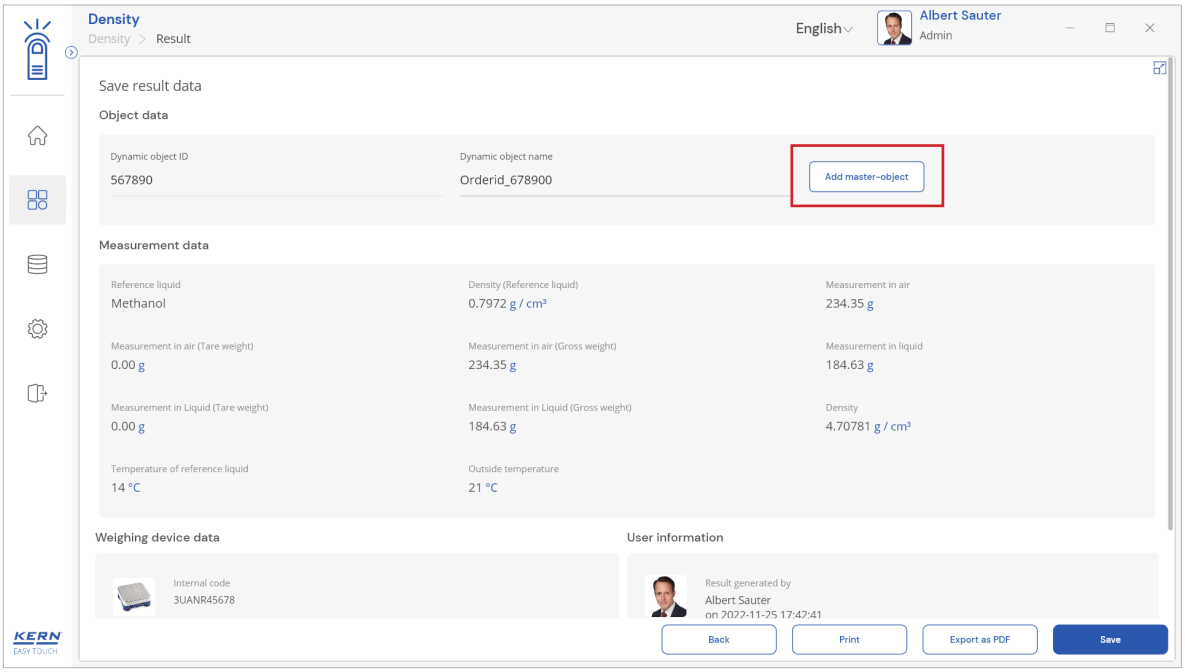
3.6 Result data

Measurement data

- An overview of the determined data appears upon clicking on the button “end”.
- The below screen appears upon clicking the end button. The user might be able to view the complete result data.
- Here, the user might be able to

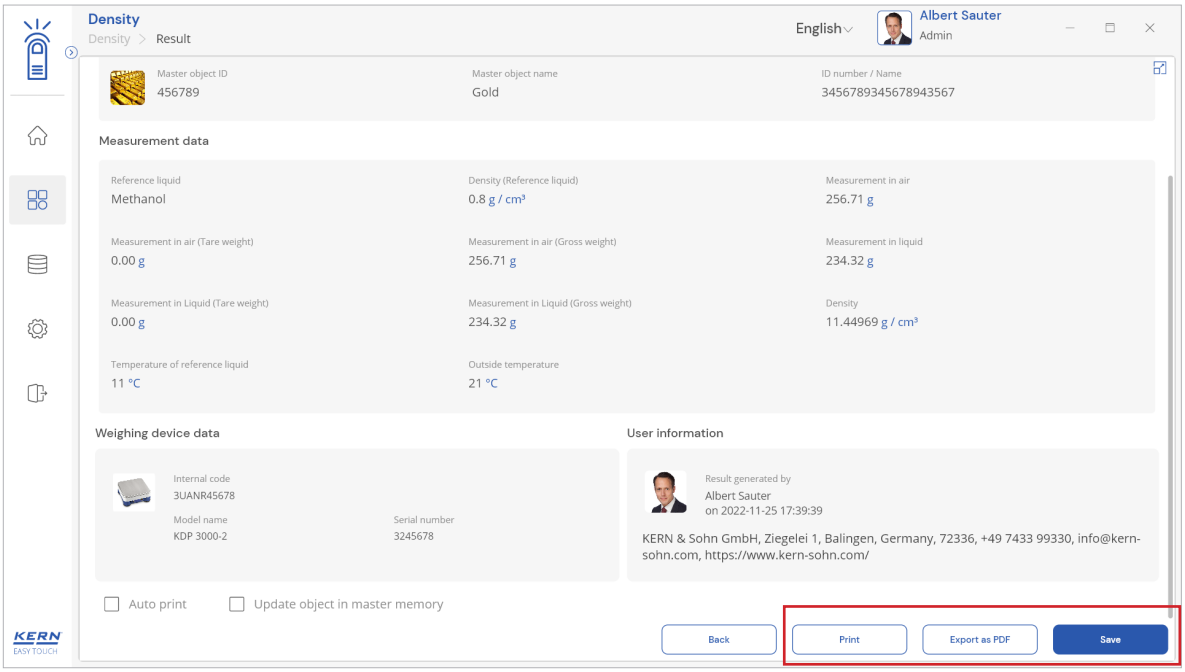
3.6.1 Add object from memory

The user might be able to pick an object from the memory where you can predefine list of objects what you use frequently. The object in the memory can be reutilized.



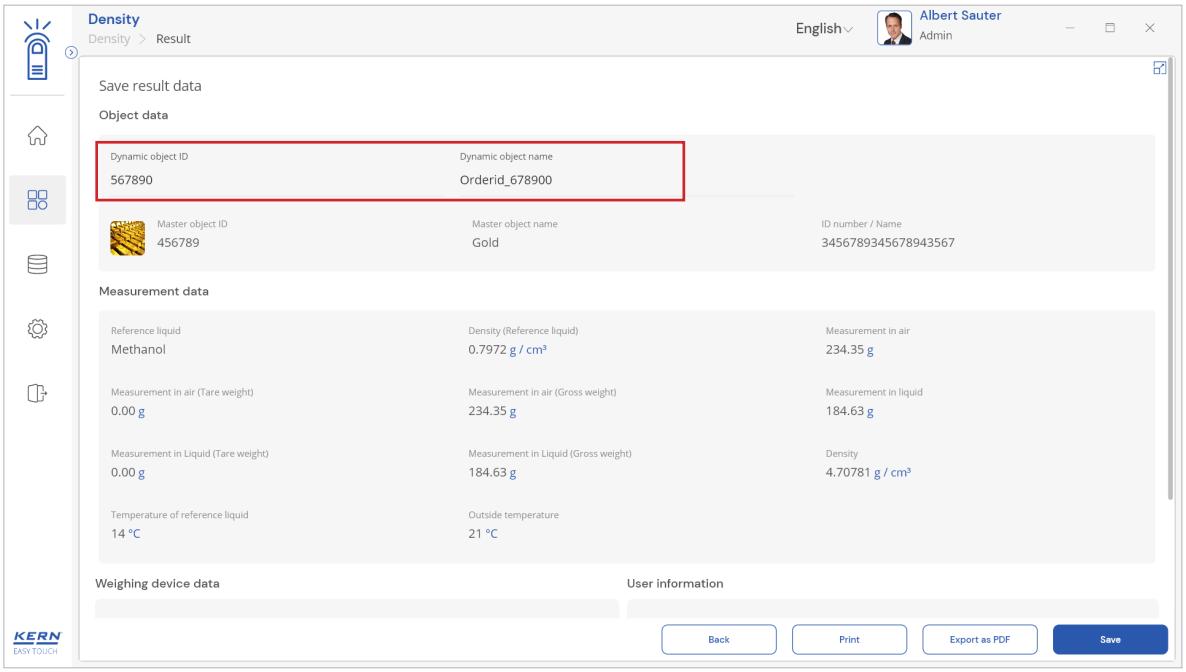
3.6.2 PDF, print and save

The user can save the data, generate the result data as an PDF or excel or print the results. All the saved results would be found in the dynamic database.



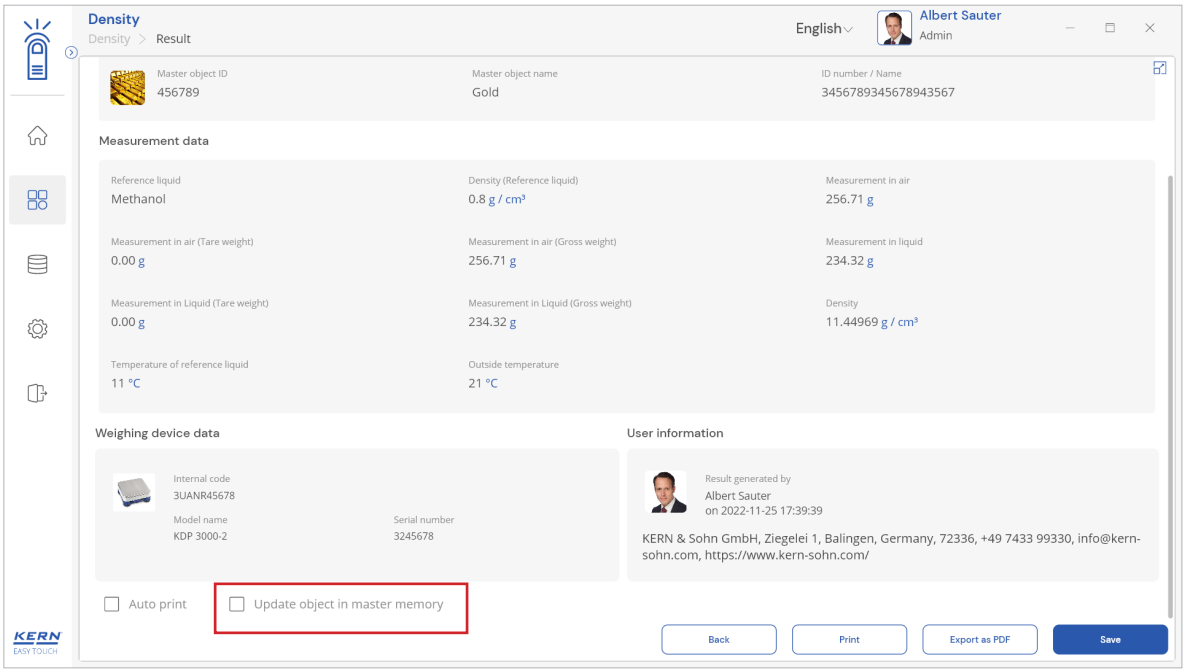
3.6.3 Dynamic object ID and name

The user can enter a reference id and name to the weighing objects to stay unique and search based on the dynamic id and name in the dynamic database (after the result data is being saved) regarding the weighing results of an object.



3.6.4 Update object in master memory

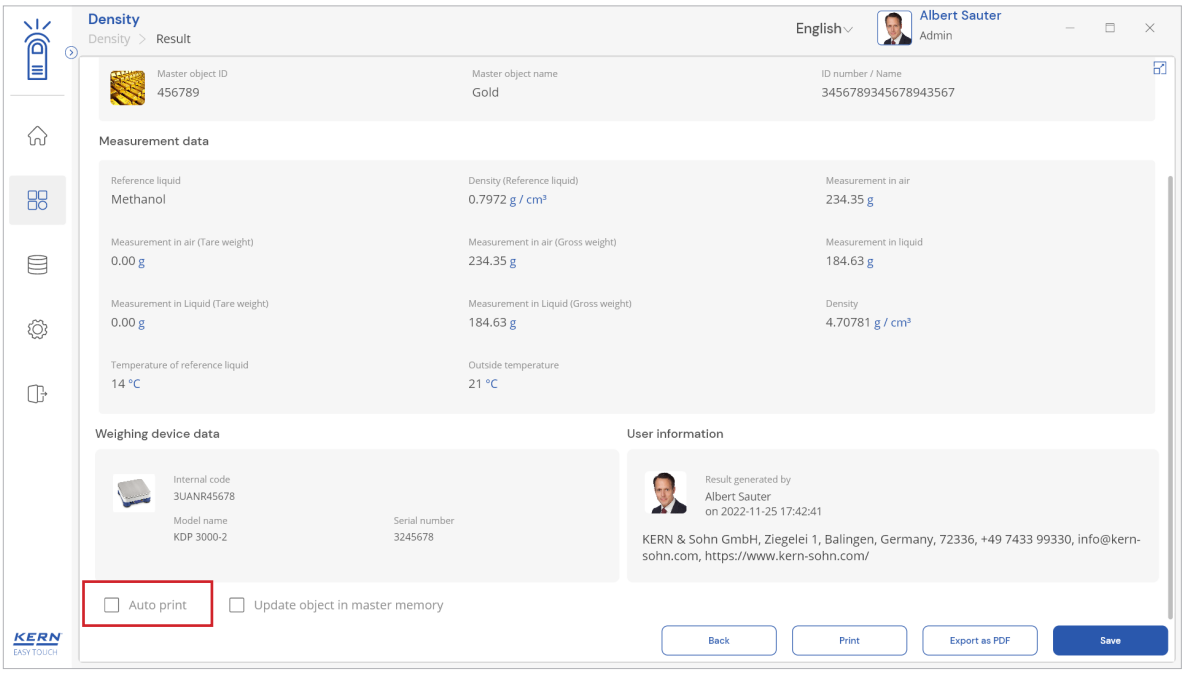
The user can be able to save the functional properties of the object in the master memory to reutilize the data by clicking on the “update object in master memory”.



For example, the reference liquid, the temperature and density will be updated in the master memory and can be utilized for future purposes.

3.6.5 Auto print

The user will have an option to save and print on a single click. This allows the user to print the data with the measurement ID.



Once the save button is clicked, the balance is again on weighing mode.

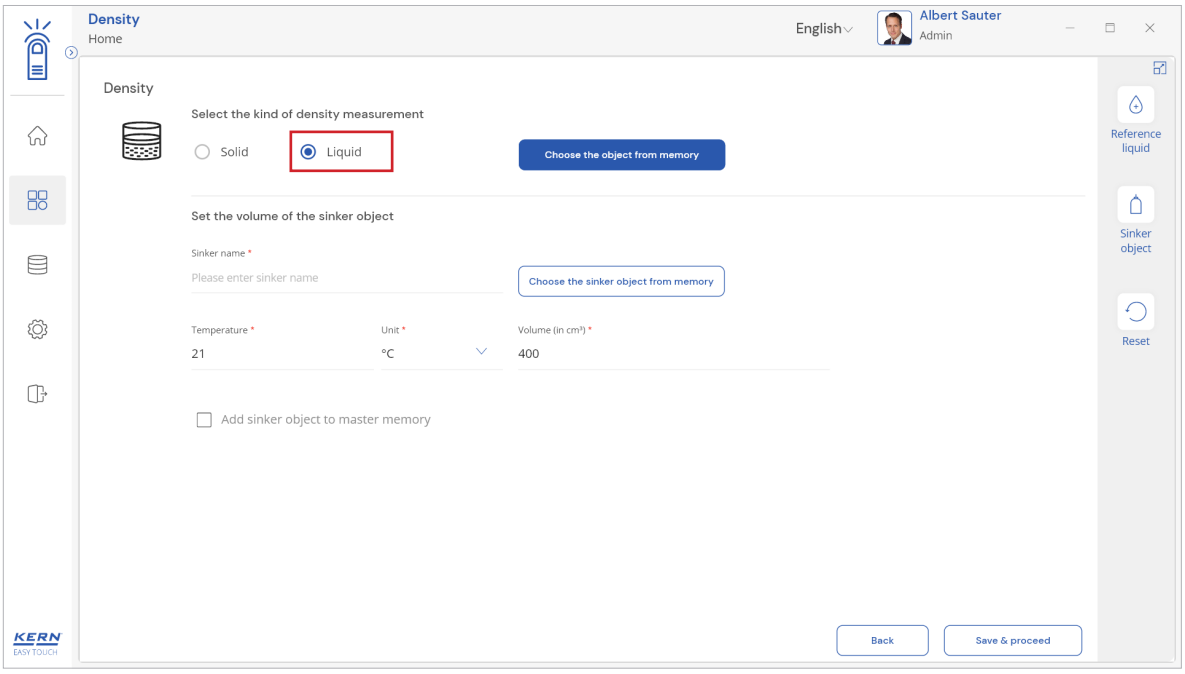
4.0 Determine the density of liquid matter

The start screen for density determination appears where you can define the type of object for which the density has to be determined.

- Choose the option as “liquid”

4.1 Defining the sinker object

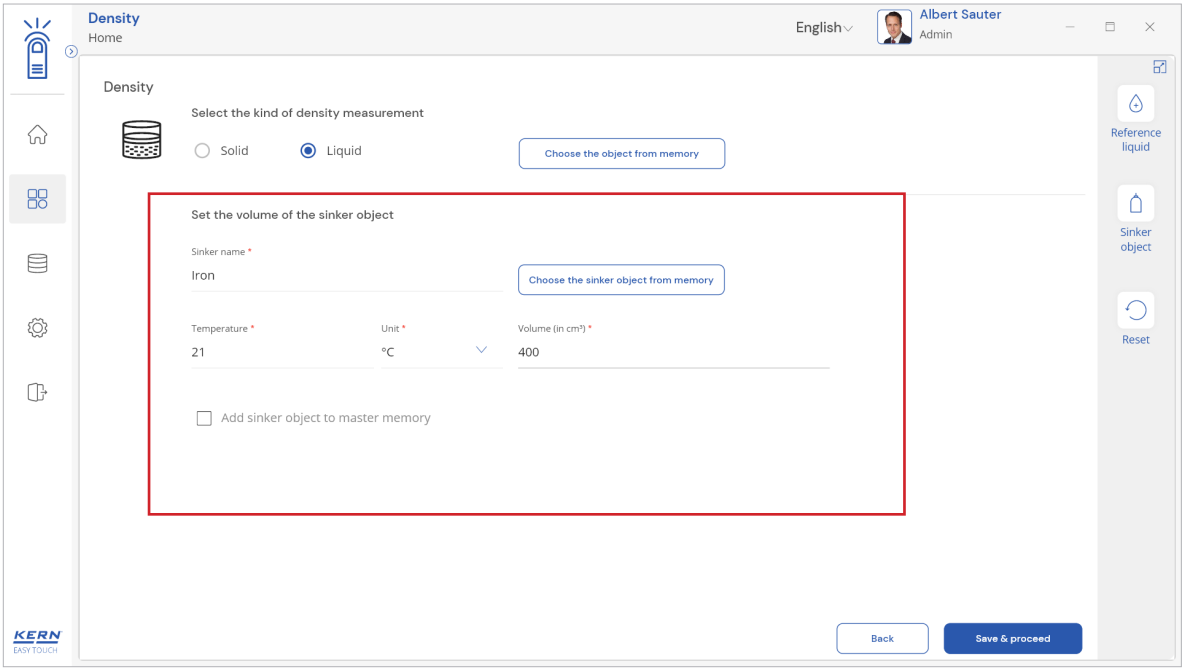
- Click on the “liquid” option in the screen to measure the density of liquid.



- The below fields appear for the users allowing them to enter the new sinker object details

as such the “sinker object name”, “temperature” and “volume”.

- Now you can fill in the following details to create a new sinker object.



Sinker object name

The user can enter a sinker object name for the object in which the fluid density can be determined.

Temperature

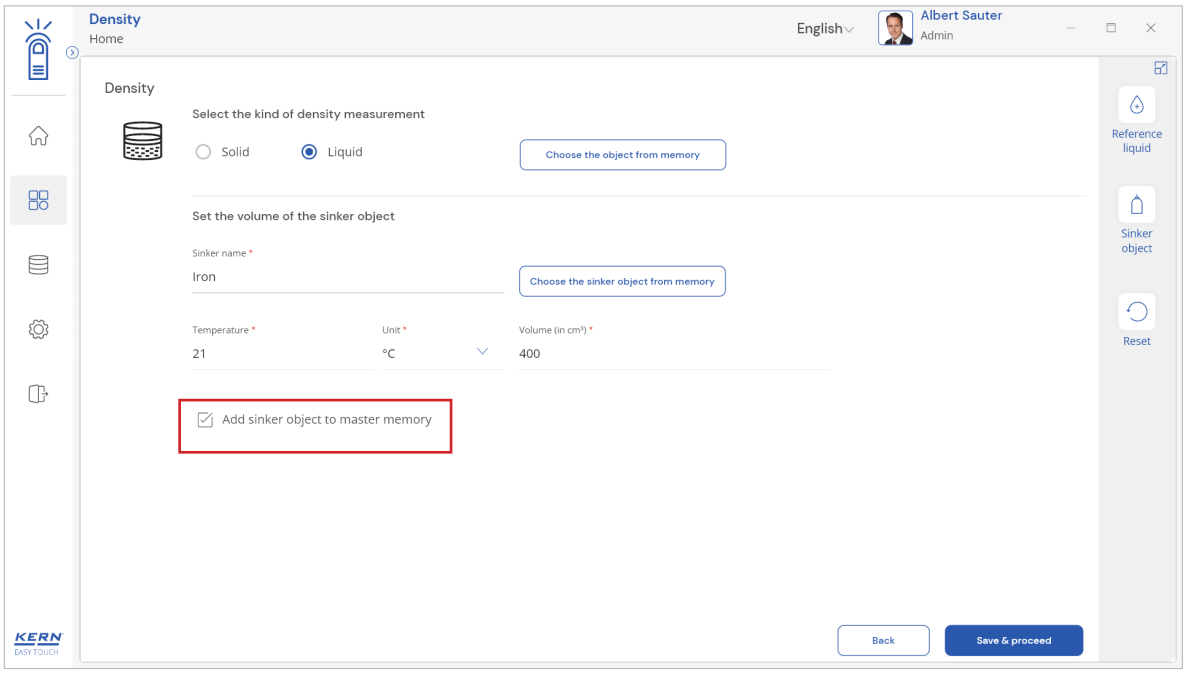
User can define the temperature of the sinker object.
Kindly note, user can define various temperature to the single sinker object.

Volume

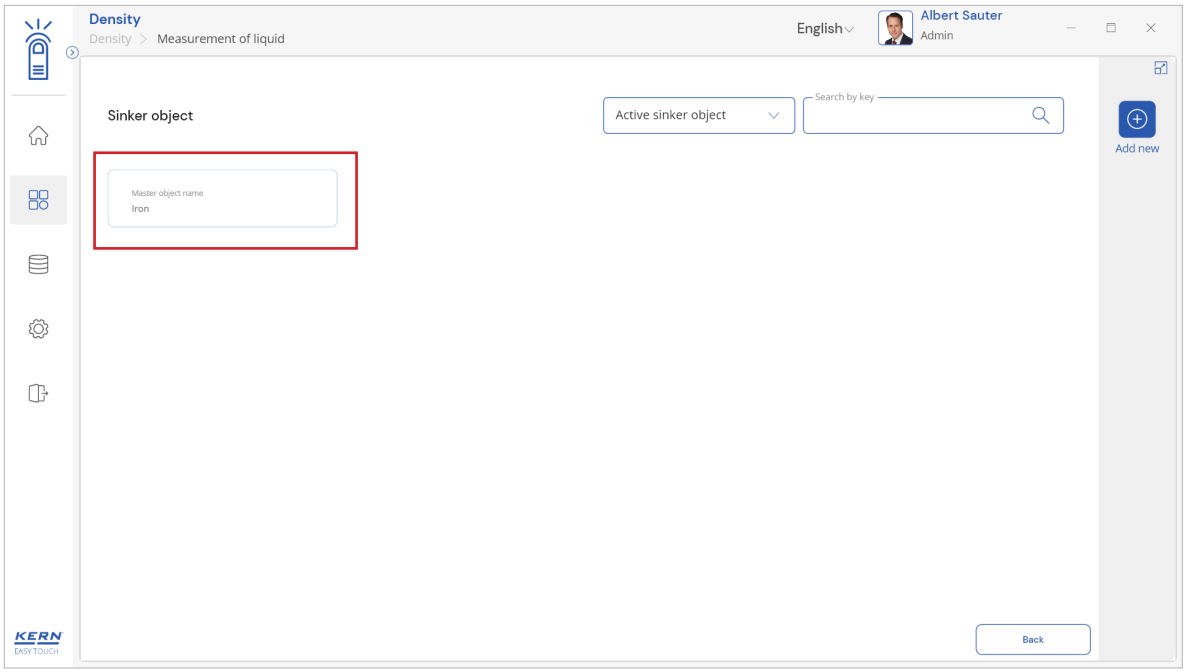
The user can define the volume of the sinker object. User might be able to define the volume according to the temperature of sinker object. User will have the provision to add multiple volumes aligning with temperatures to a single sinker object.

4.2 Add sinker object to master memory

This allows you to save the created sinker object in master memory and it can be reused in the density function.



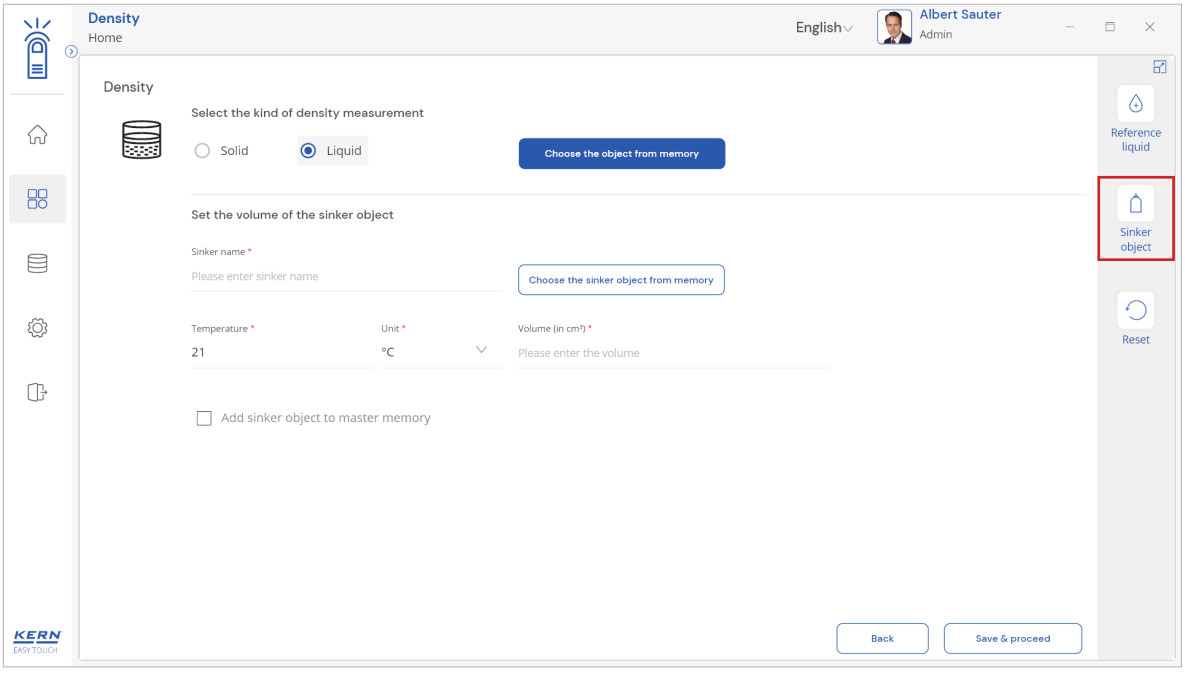
If you enter all the mandatory fields, then “add sinker object to master memory” will be enabled and upon selecting it, the data will be saved in the master memory.



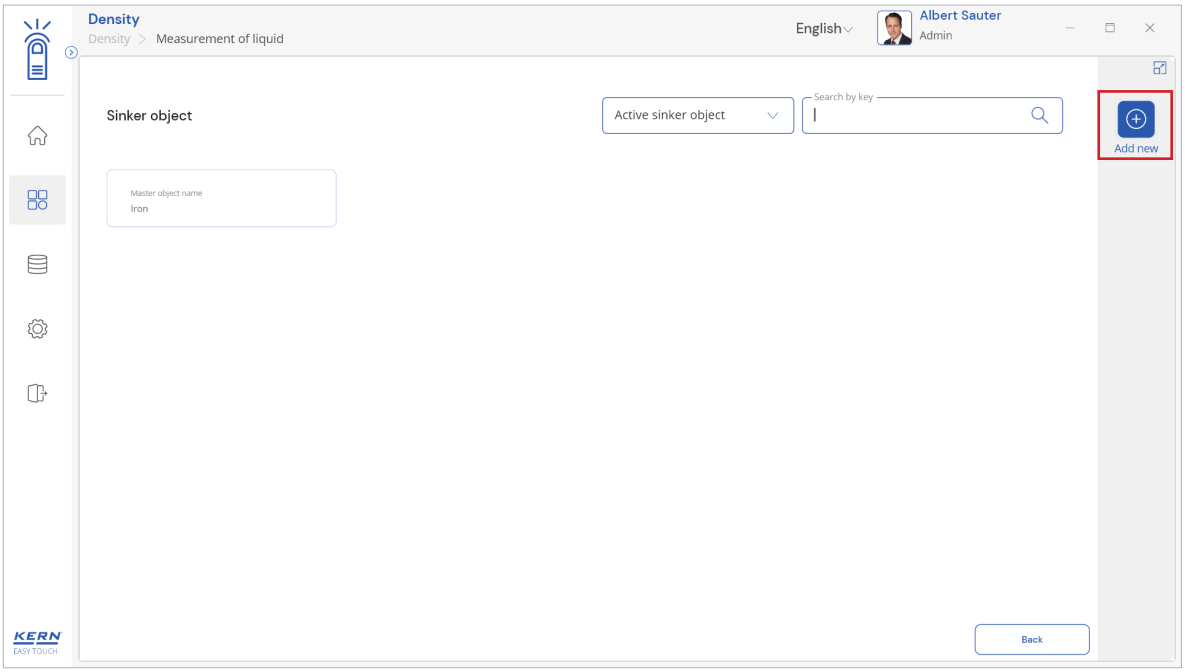
This can be reused any number of times in the density function.

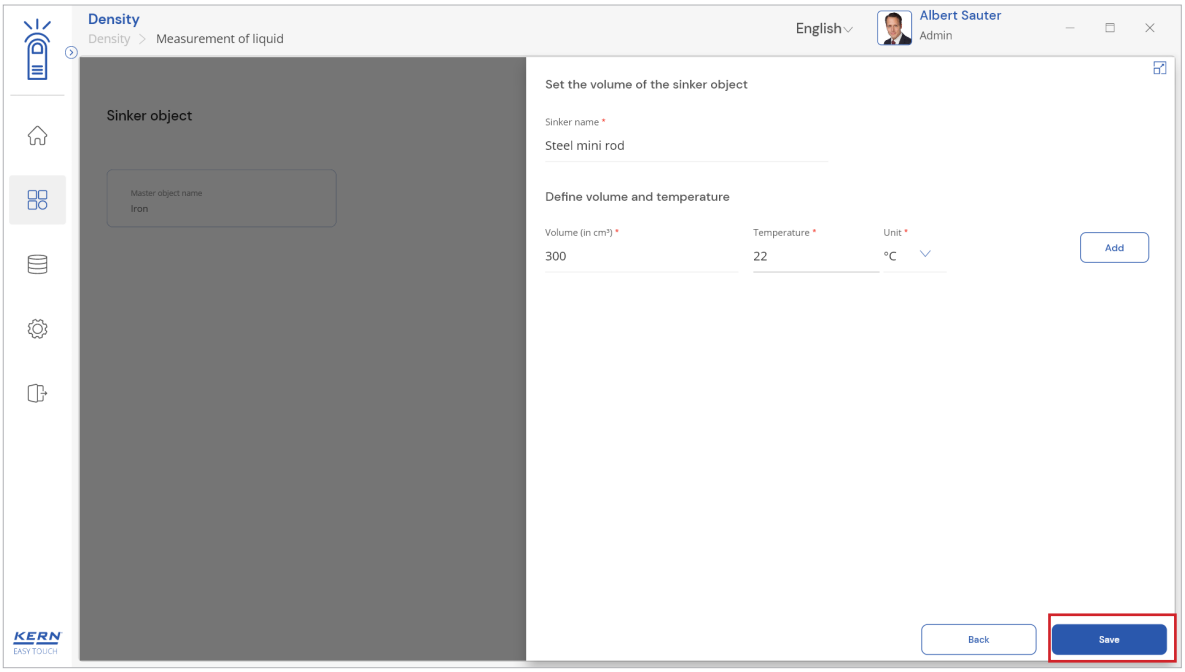
4.2.1 Adding the sinker object in memory

- Choosing the “sinker object” icon will redirect to the screen where the user can add the various sinker objects used for finding the density of liquid.

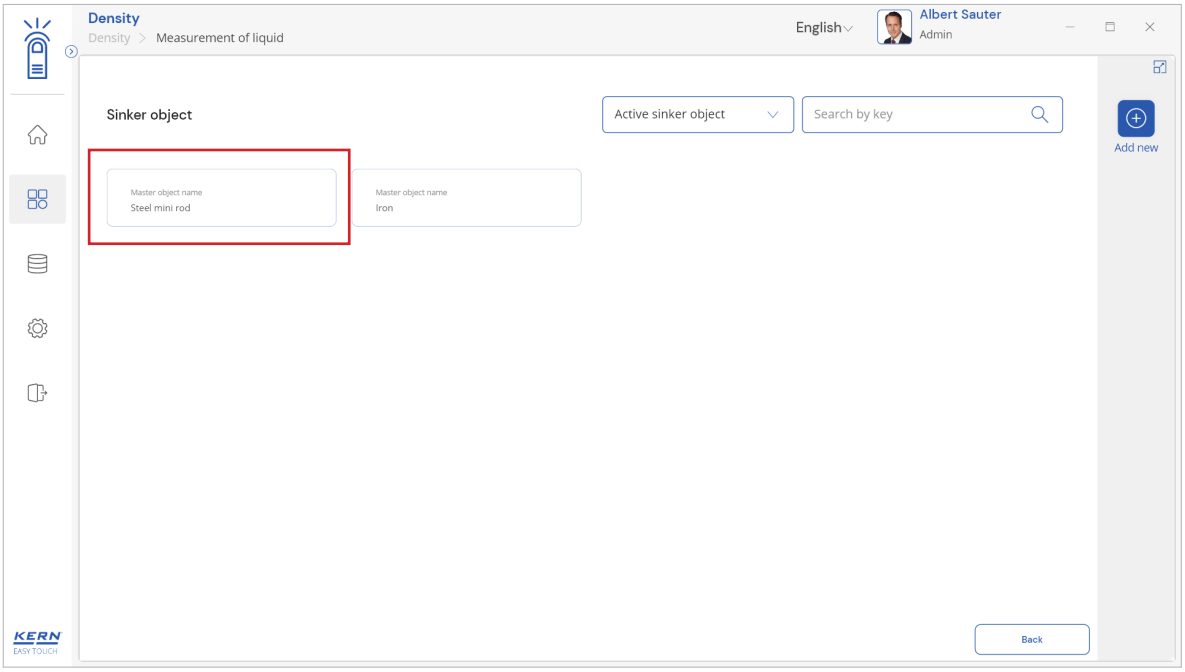


- Click on the “add new” and enter the sinker object name, volume, and temperature. User will be having the provision to define multiple volumes in alignment with the temperature.





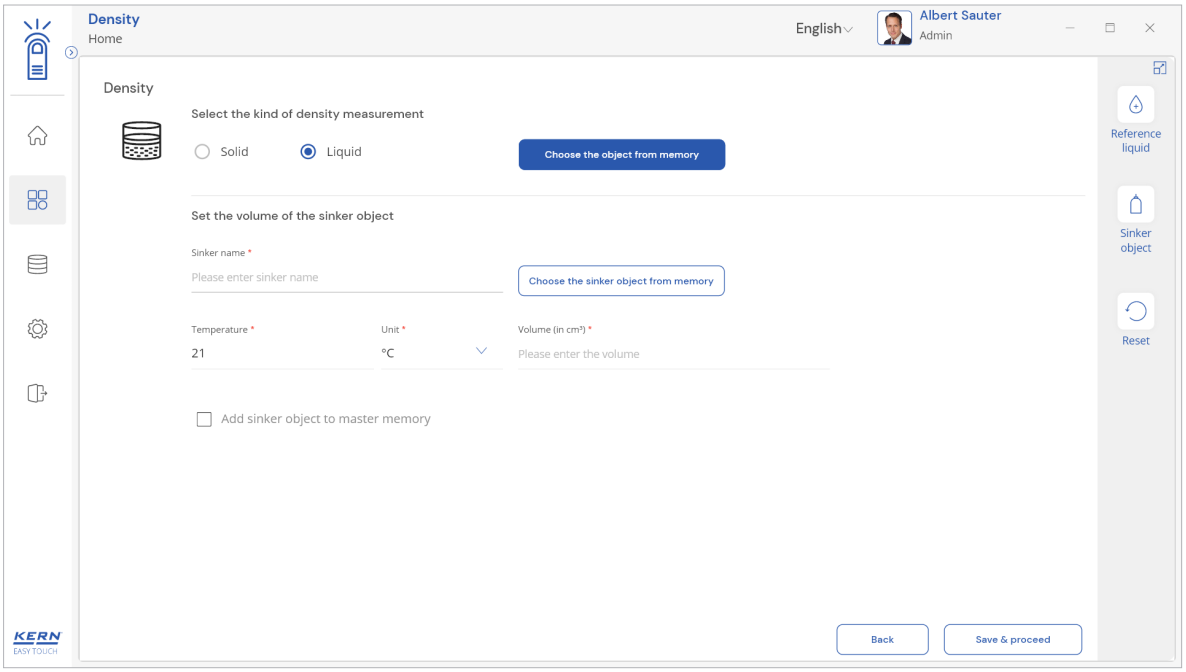
- Click on save to save your sinker object after your addition of temperature and its respective volumes.



- The data will get saved and is contributed for reuse.

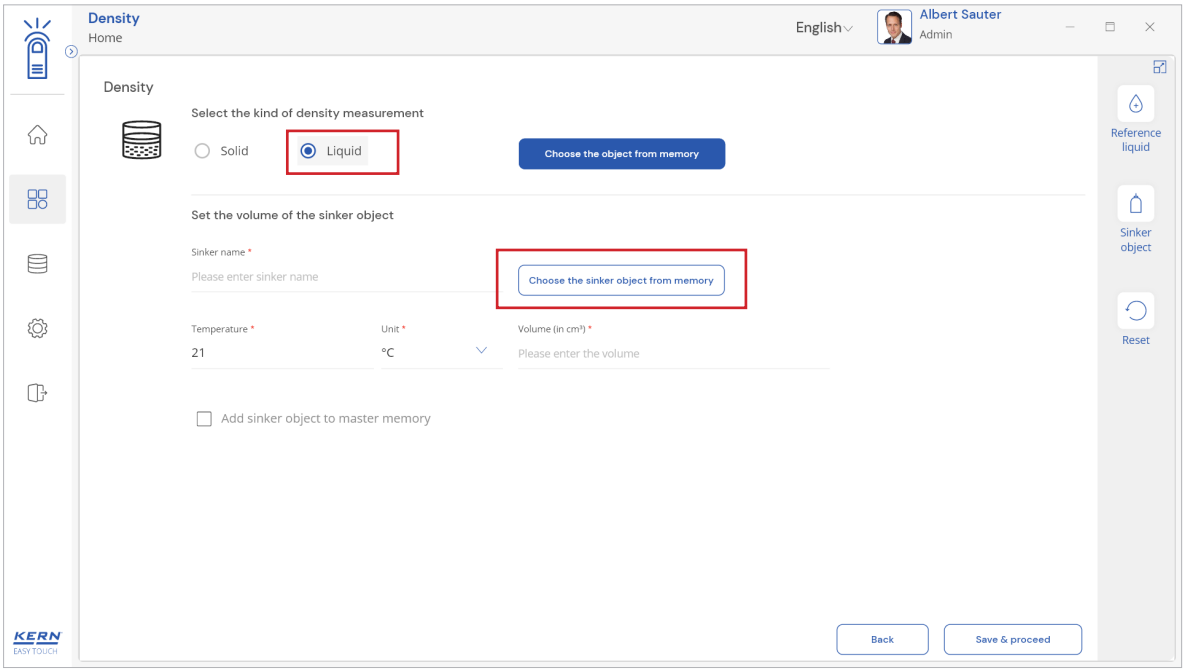
4.3 Utilizing the added sinker object from memory

The user might be able to pick the sinker object from the memory where the user has already predefined the list of sinker objects and its properties what is being used frequently

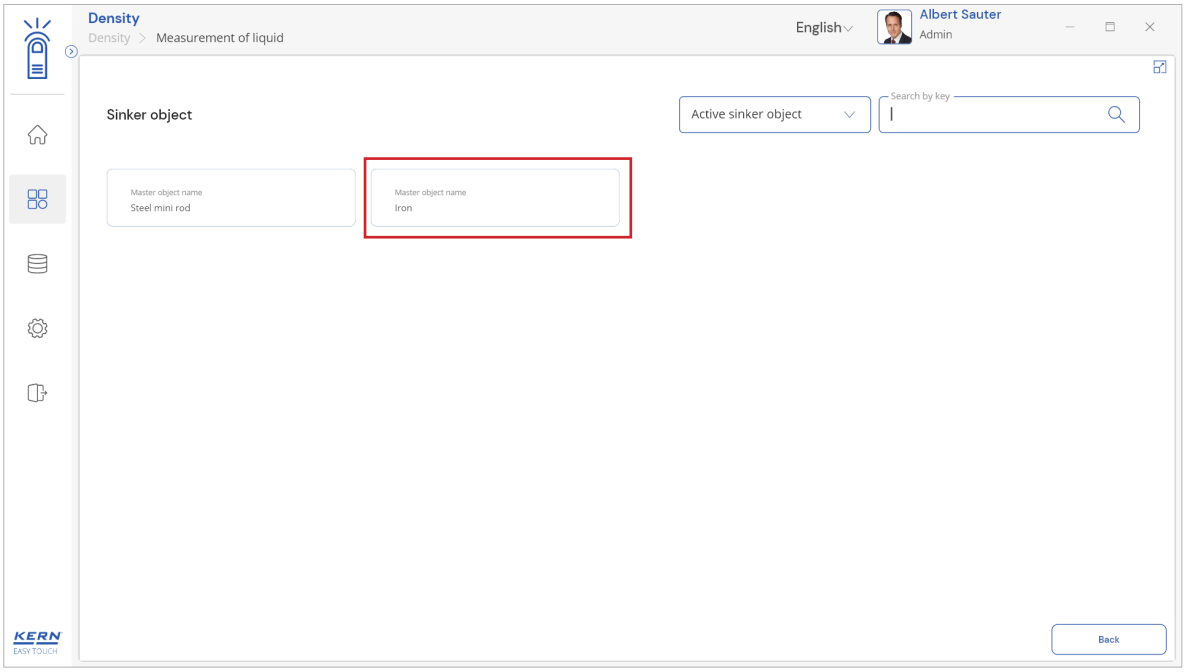


Steps to utilize the sinker object

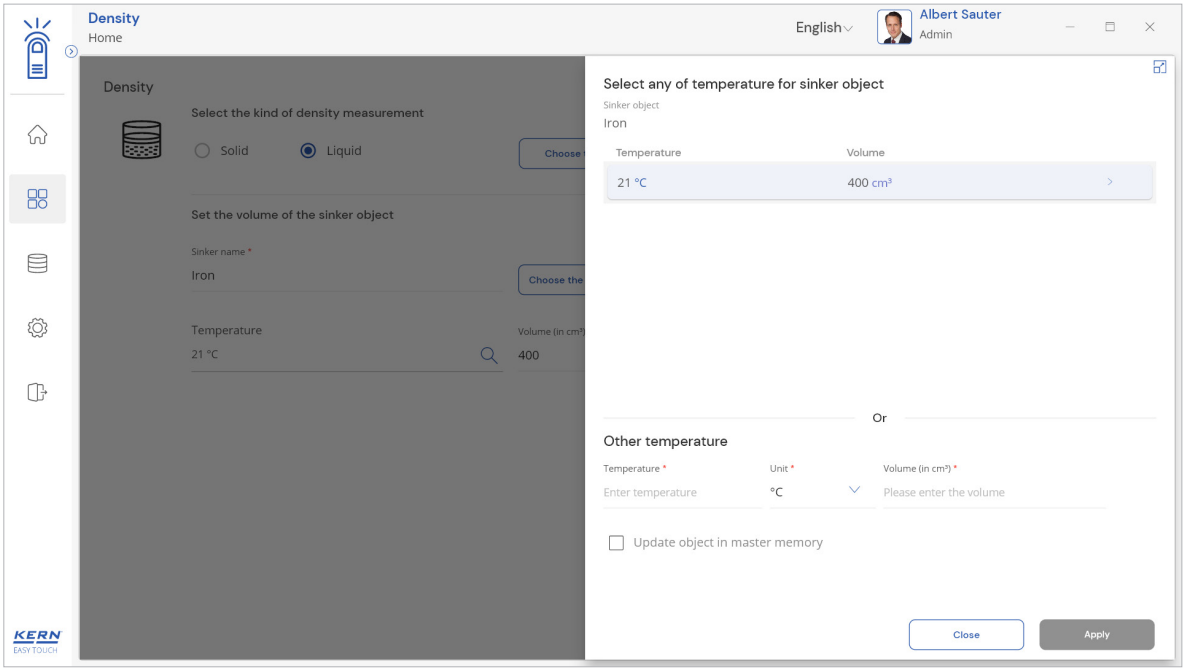
- Redirect to the home screen and now choose the weighing object type as “liquid”.

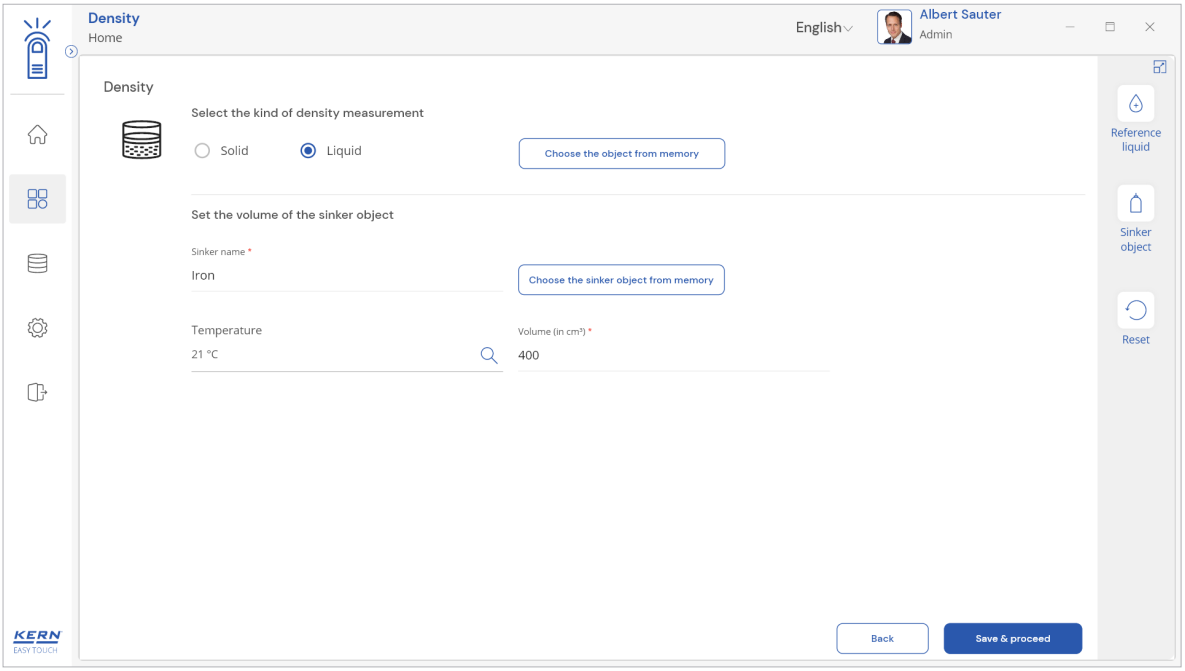


- Click on “choose the sinker object from memory”, you will be redirected to the screen where you can select the sinker object from the memory.
- User will be provided with the search option to search the required weighing object.

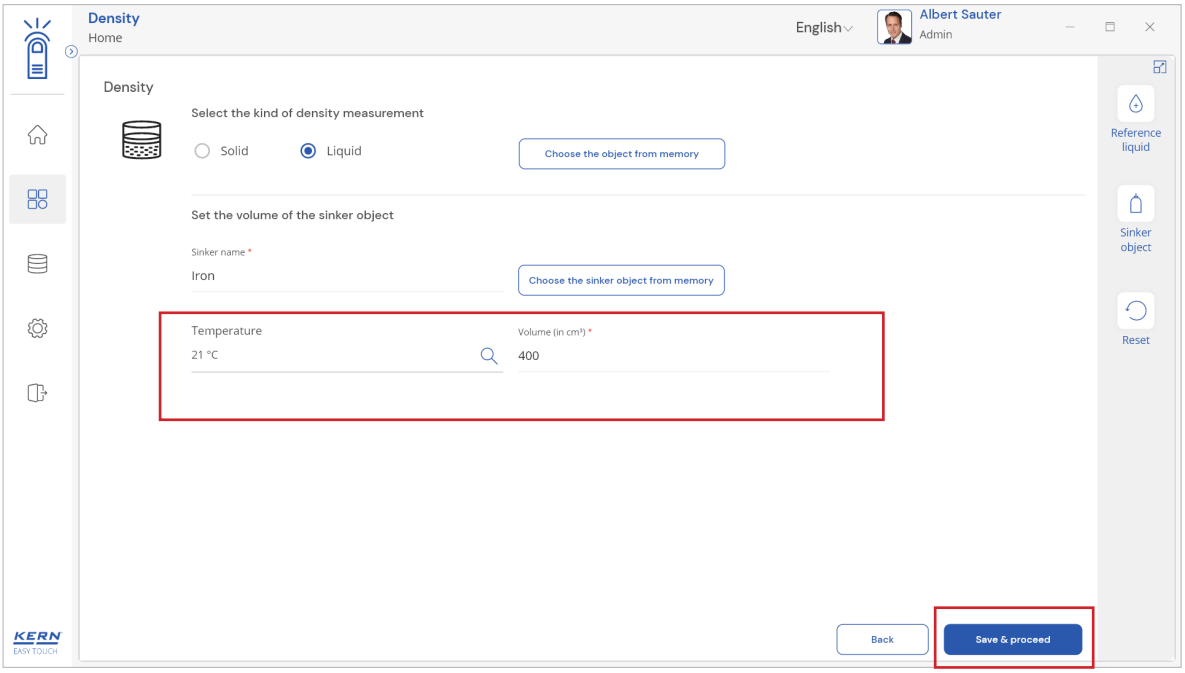


- User will be redirected to the predefined list where the user can choose the respective temperature and volume.
- Select the temperature of sinker object from the list of temperatures which are already defined in the sinker object or input new values for temperature and volumes and then proceed





- The sinker objects and its respective properties would be auto populated so the user might start finding the density by clicking on the “save and proceed”

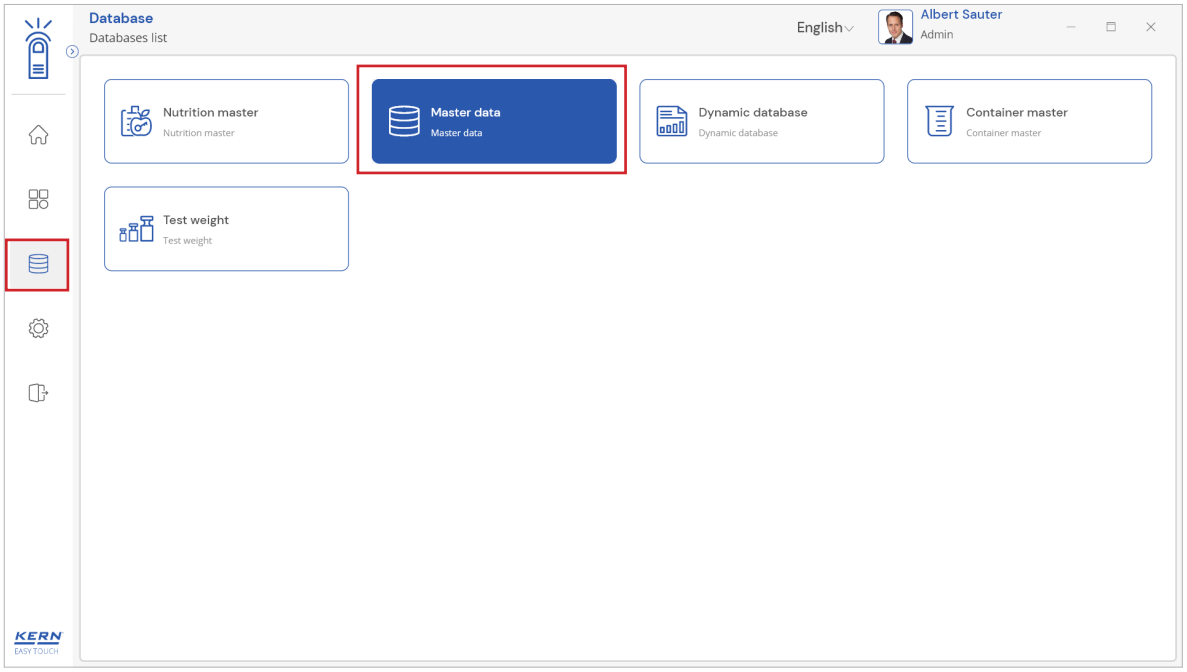


4.4 Master memory

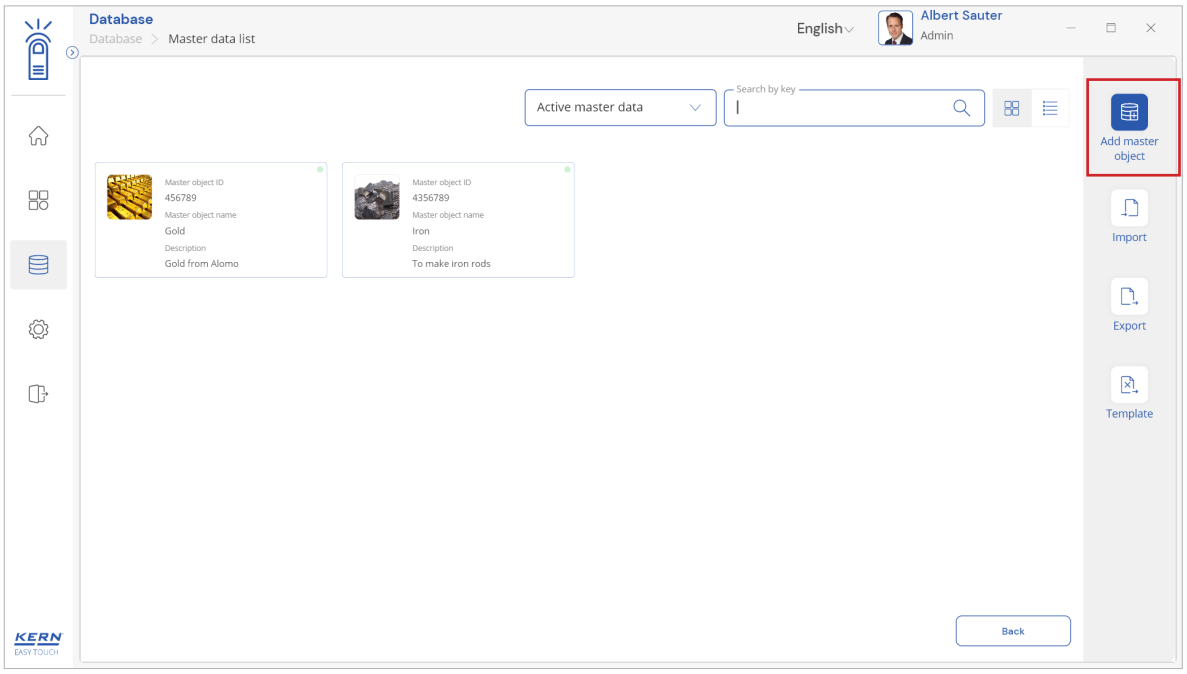
The user might be able to pick an object for which the density has to be determined from the memory where the user can predefine list of objects what is used frequently. The object in the memory can be reutilized.

Steps to be followed to create a master data with functional properties

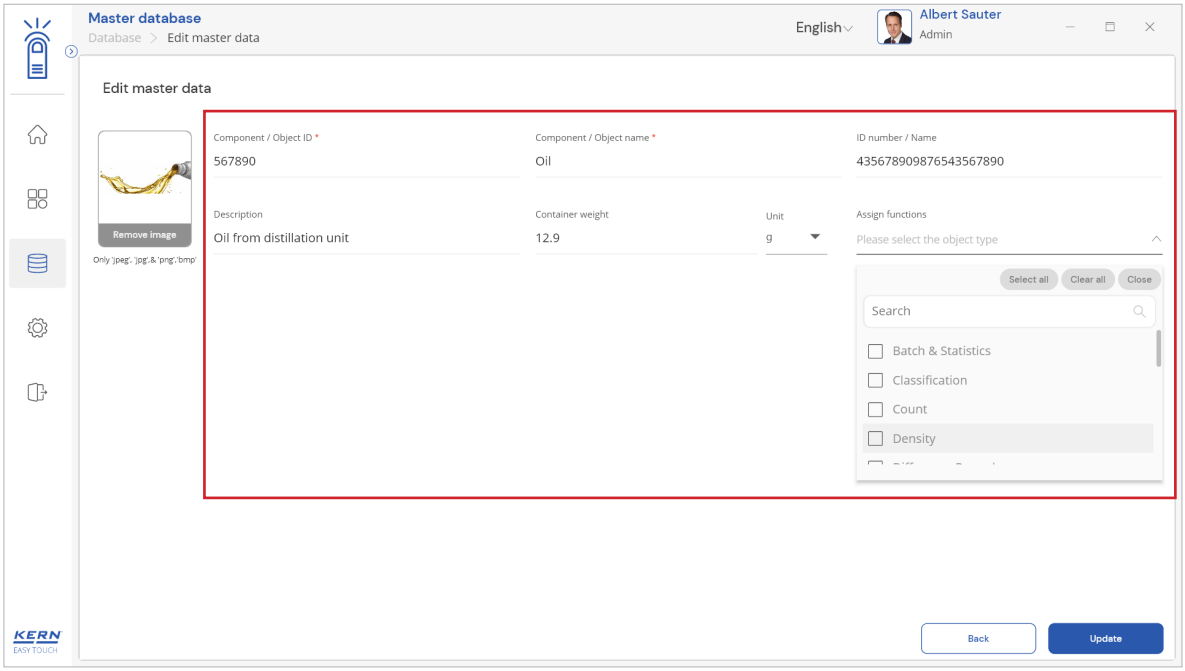
- Click on the database icon and redirect to the master data.



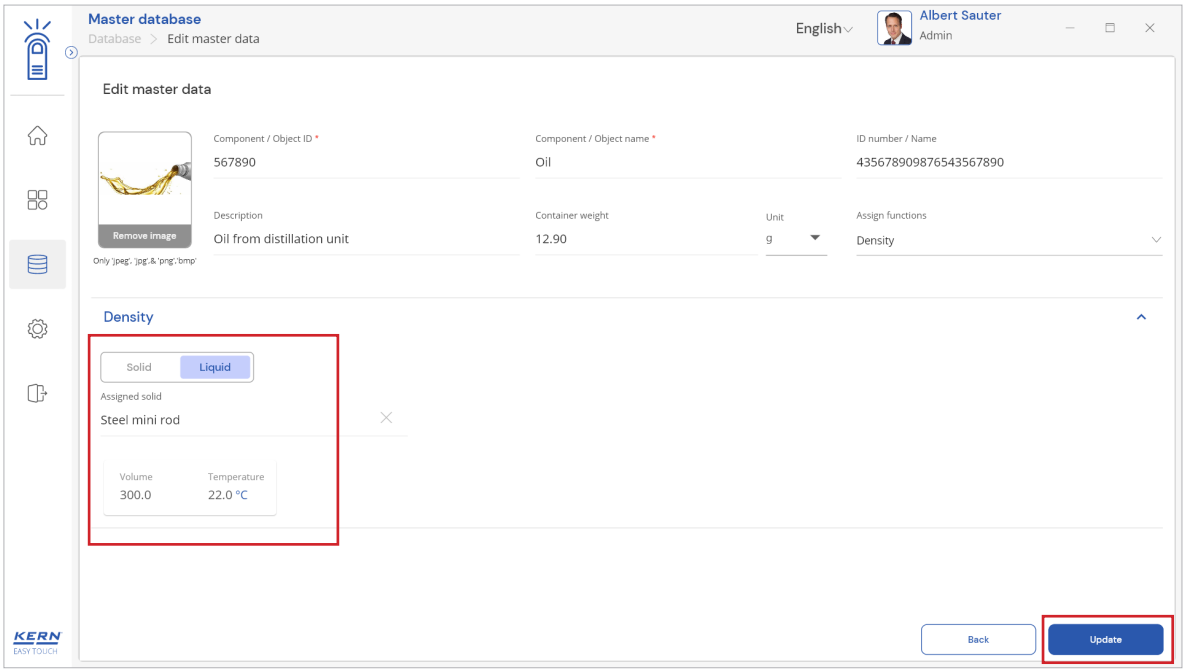
- The below screen would be displayed. The user might be able to see the list of master data objects created here.



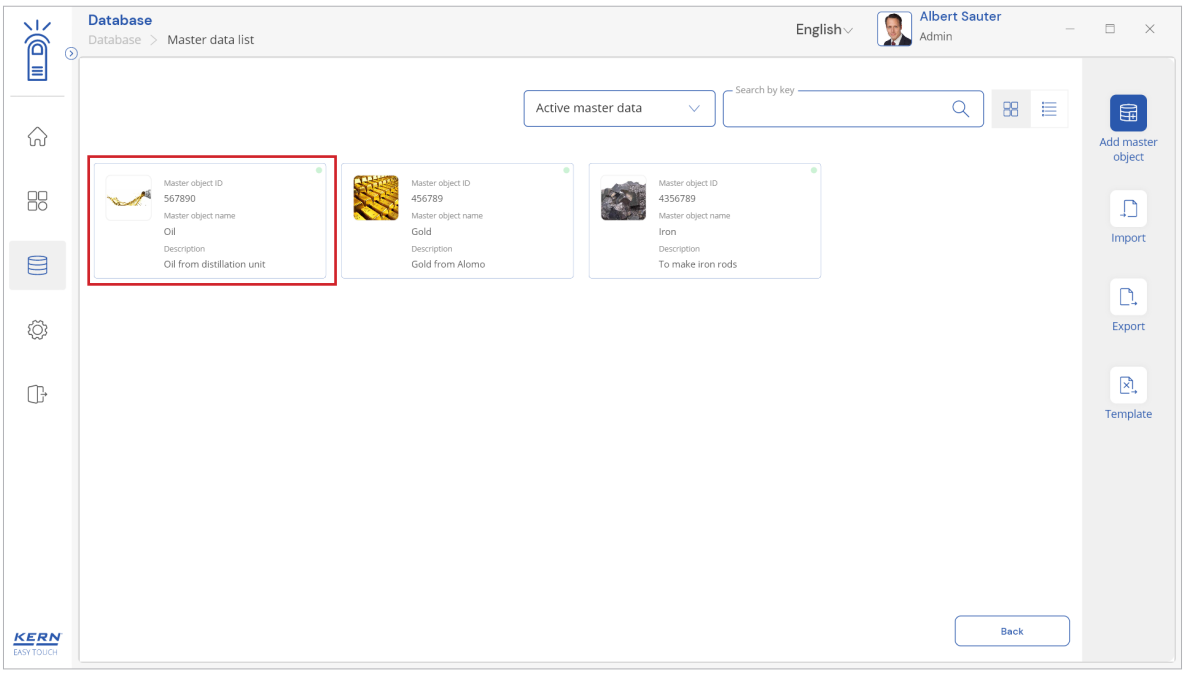
- The user can click on the “add master object” to create a new master object.
- The user can fill in the information as such component / object ID, Component / object name, ID number / name, description, container weight and the image for the reference.



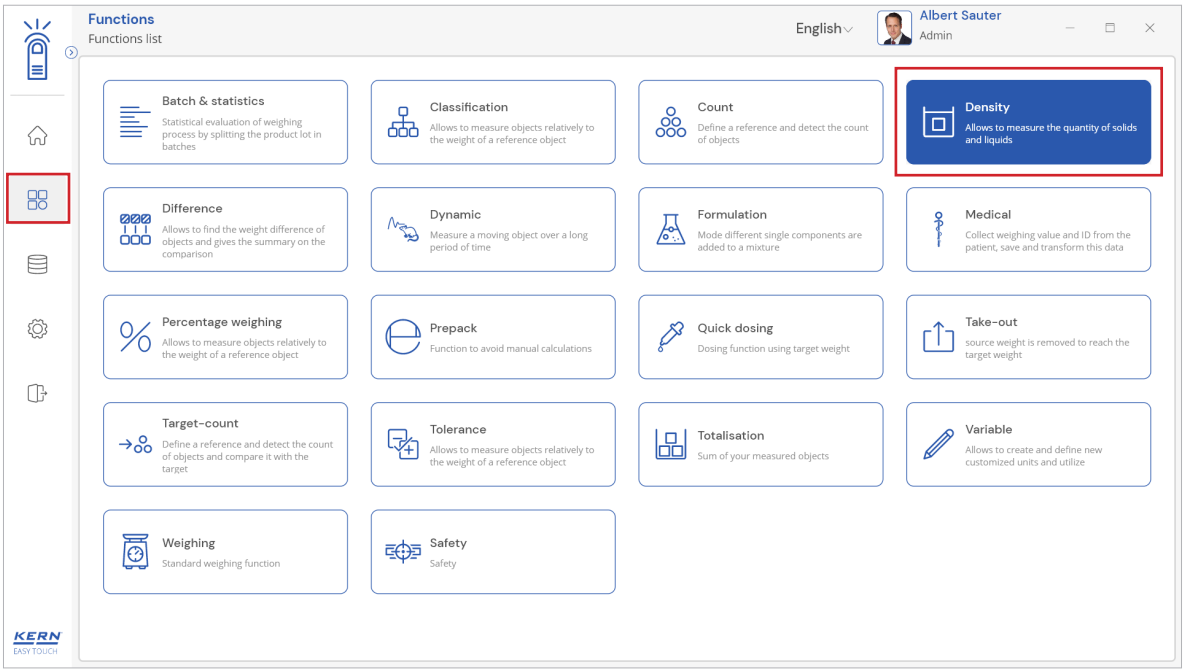
- Now user can select the required function “density” to utilize the properties.
- Upon clicking the function, the functional properties would be displayed. Please choose the object type as “liquid”.



- User can choose the respective sinker object and click on submit to save the master object.
- The master object data is being saved and user could be able to view the created master object in the master list.

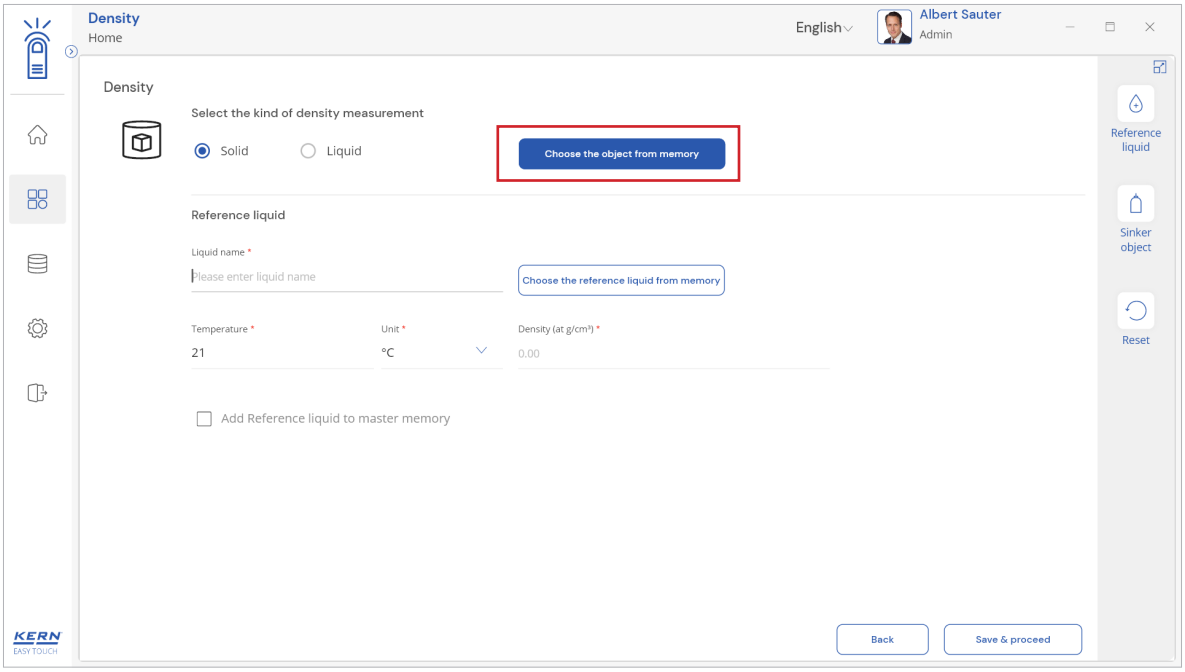


- Now redirect to the function “density” to utilize the created master data

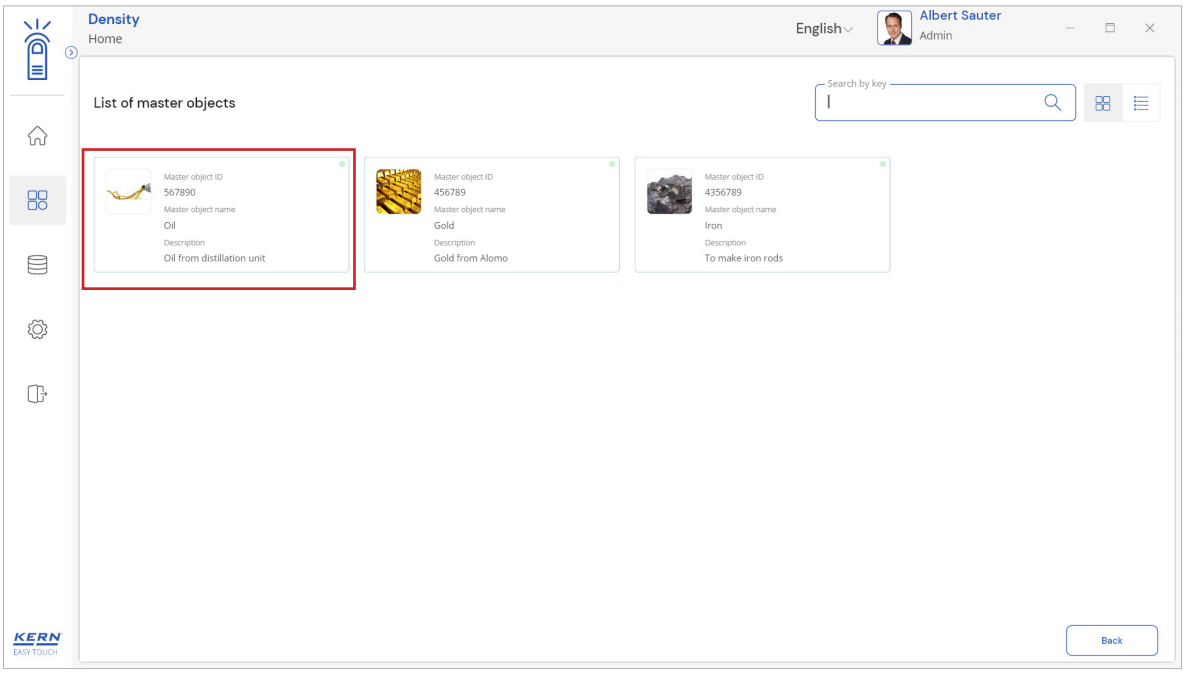


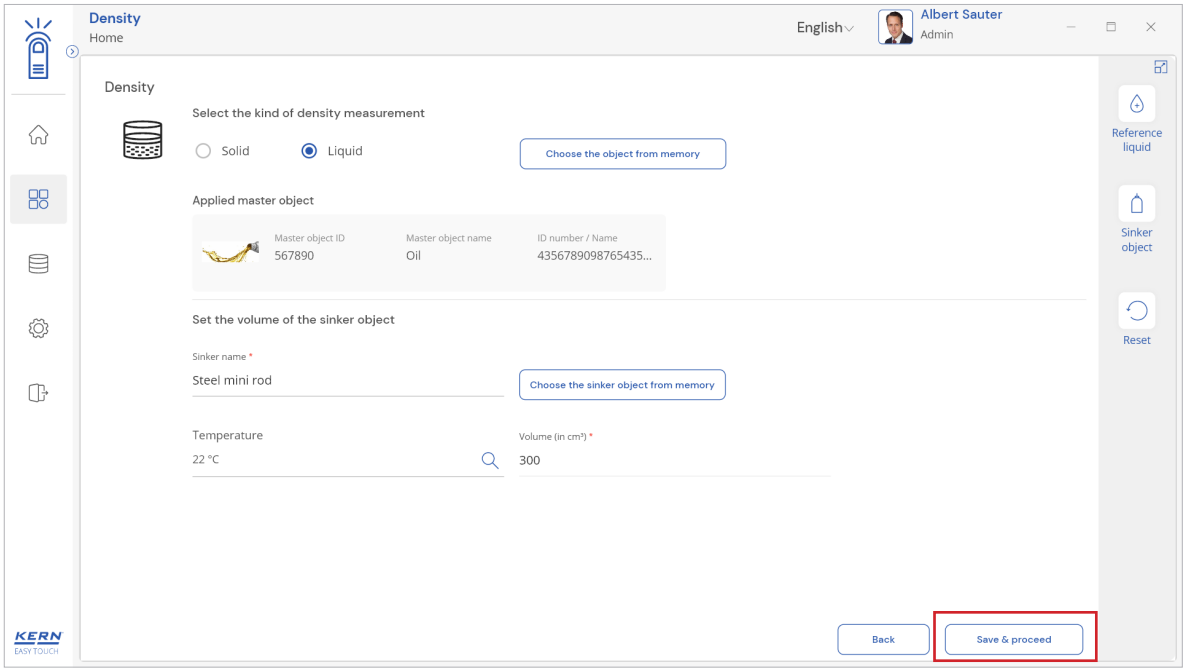
The user can be able to pick an object from the memory what is going to be measured.

- Click on the memory and the user will be taken to the master memory to pick from the list of objects predefined. User can click on the required object to be weighed.
- User will be provided with the search option to search the required weighing object.



- User will be redirected to the previous screen upon clicking the required object and all the details would be auto populated.



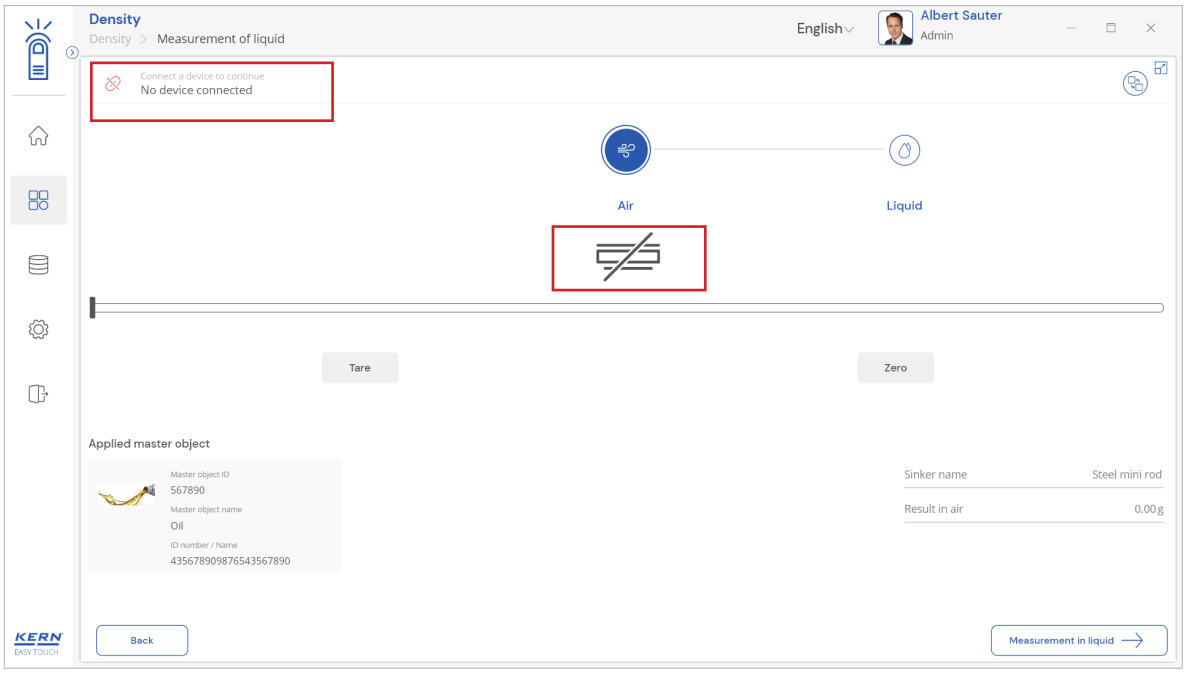


4.5 Finding the density

Once the temperature and the density are defined click on the “save and proceed” button to proceed further.

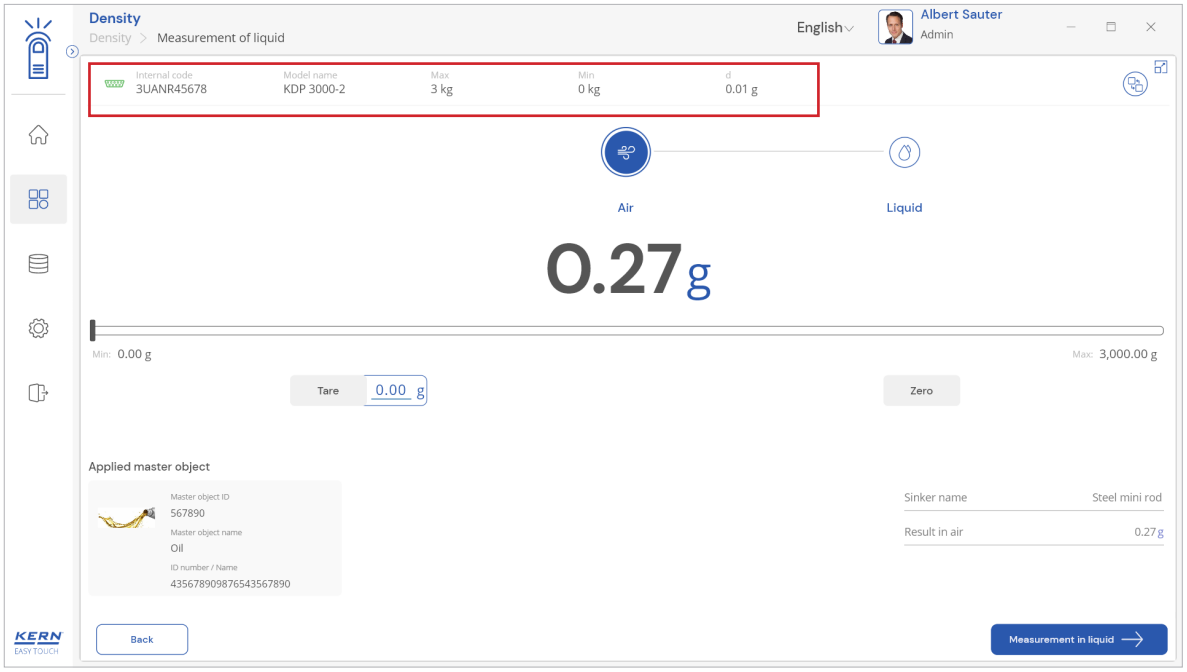
Device features

The device features can be utilized upon connecting the device with the weighing scale. Indication of “no device being connected” will be displayed.



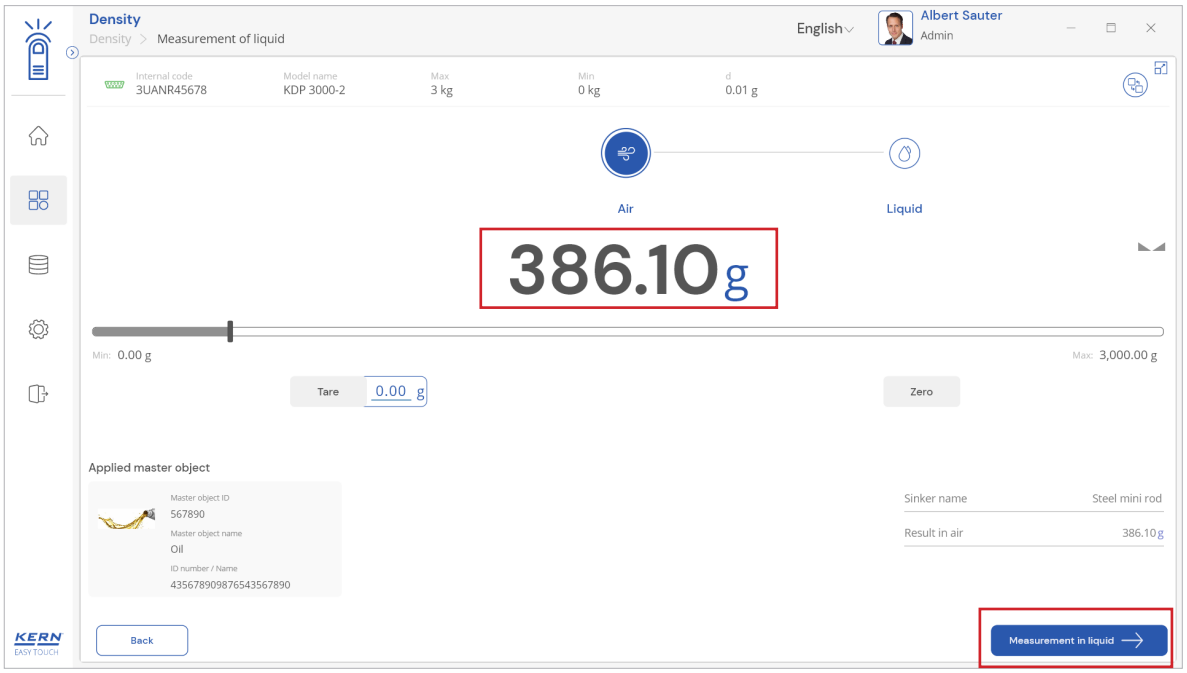
- The provision to minimize and maximize were also being given in the upper right corner of the screen to get a full view mode
- Now connect a device to proceed with weighing of an object by clicking on the “connect a device to continue”

- Connect a device which is physically connected to the system and now the weighing mode is activated, and screen looks as per the below.



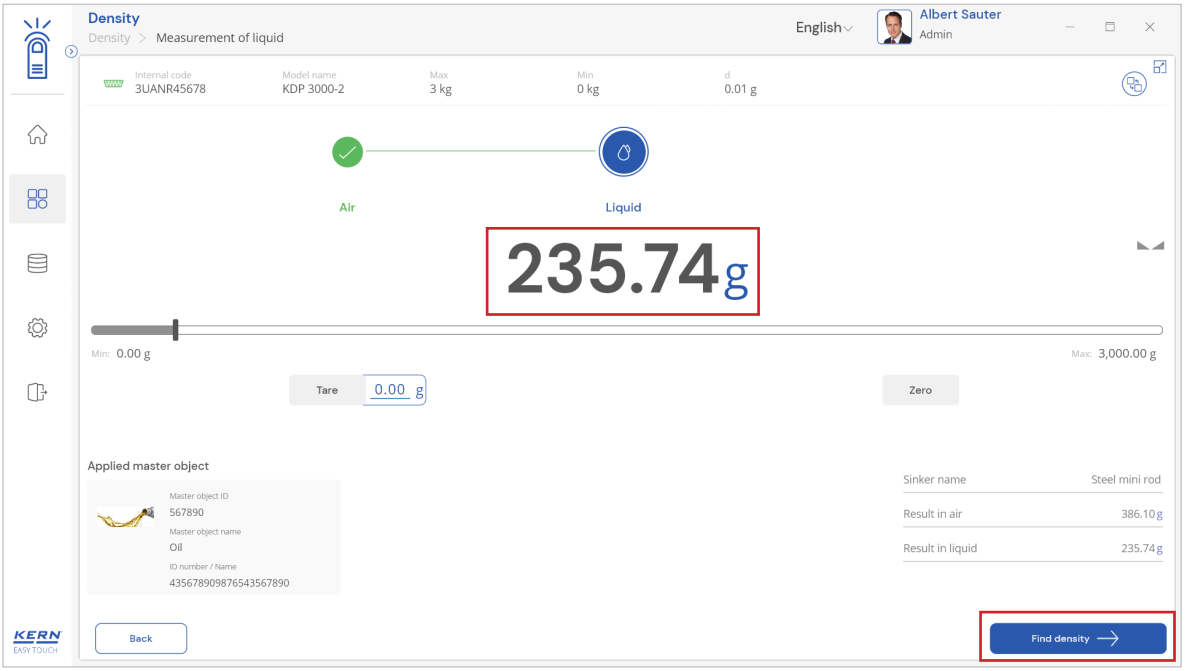
Start measurement in air

Place the required object in the weighing scale and after stabilization, then click on "measurement in liquid" to save the weight of the object measured in air and then to proceed measuring the object in the liquid using the sinker object.



Measurement in liquid

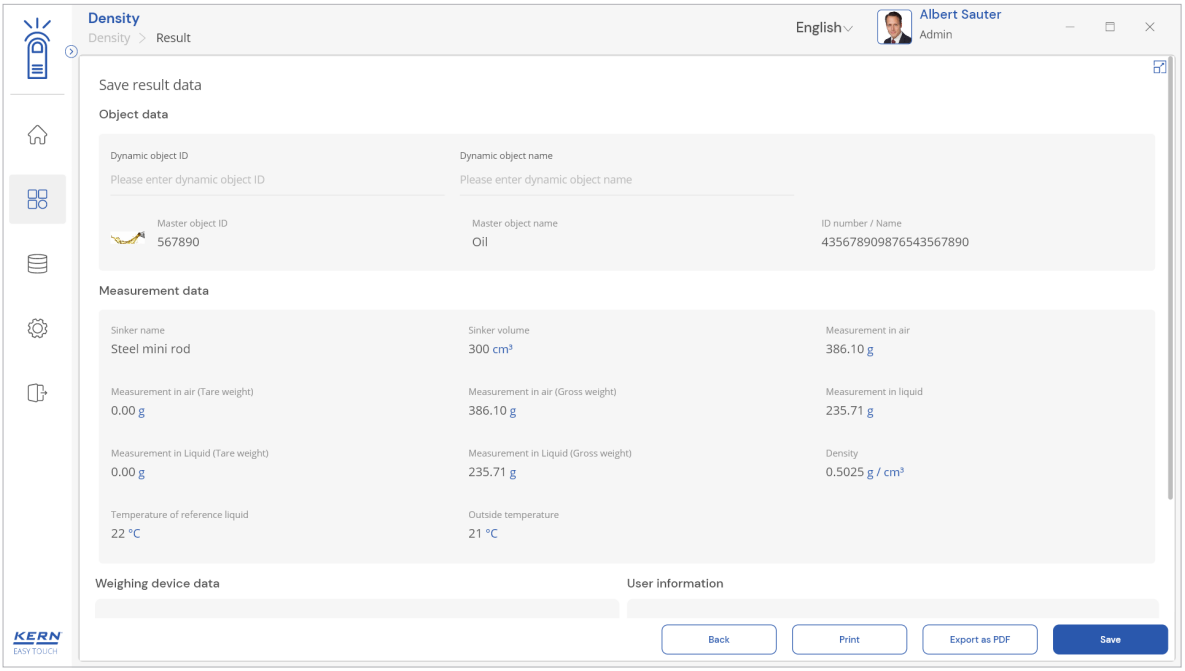
Upon clicking the measurement in liquid you will be taken to the screen where you can measure the weight of the liquid using the sinker object. Here in this screen the net weight of the object in the sinker object is captured.



The user should then click on “density” to view the density of the object

Calculate density

The density value is calculated based on the density of the sinker object, net weight of object in air and liquid based on the gravimetric-archimedean principle and displayed in the result screen.

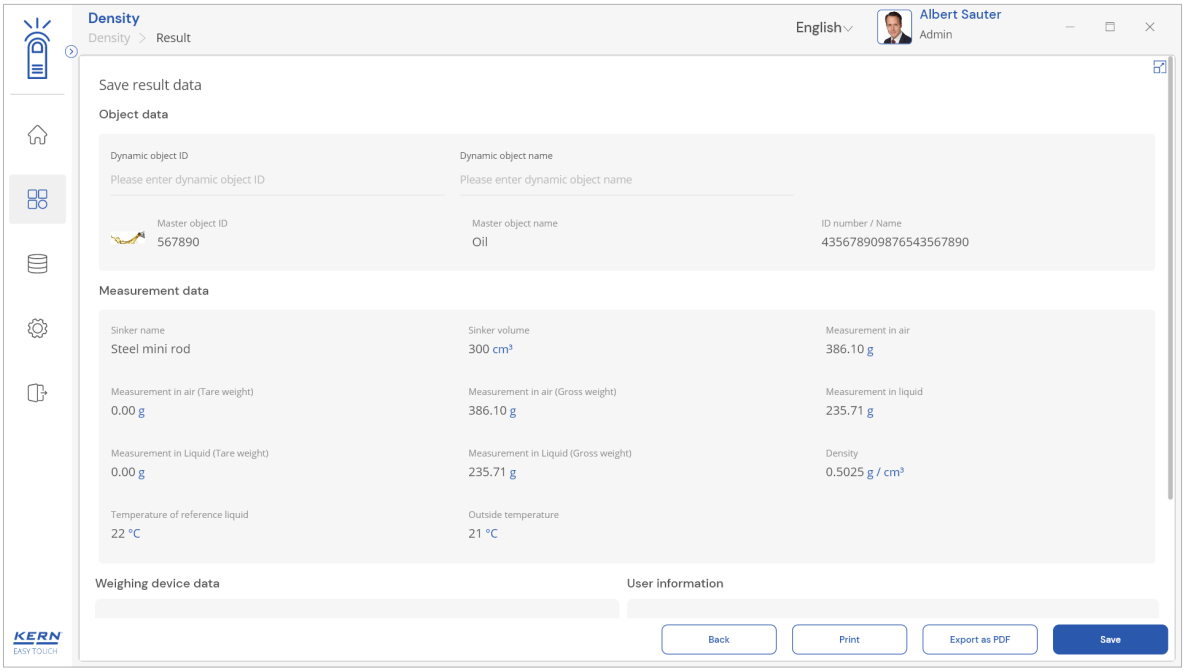


4.6 Result data

Measurement data

An overview of the determined data appears upon clicking on the button “find density”.

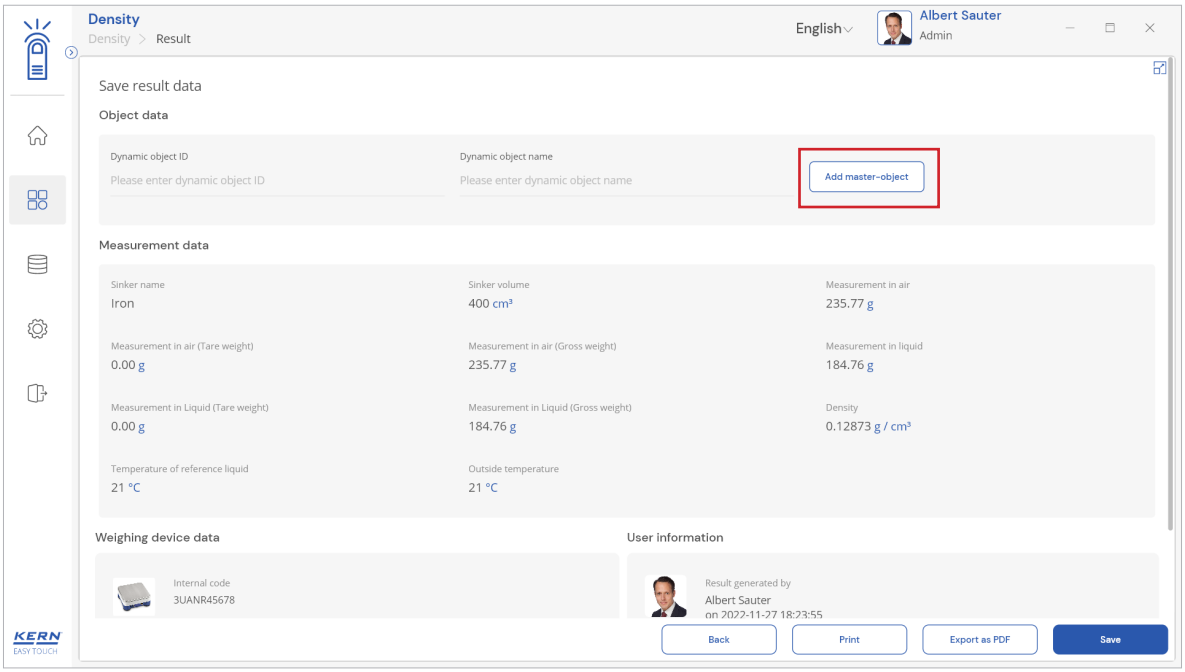
The below screen appears upon clicking the end button. The user might be able to view the complete result data.



Here, the user might be able to

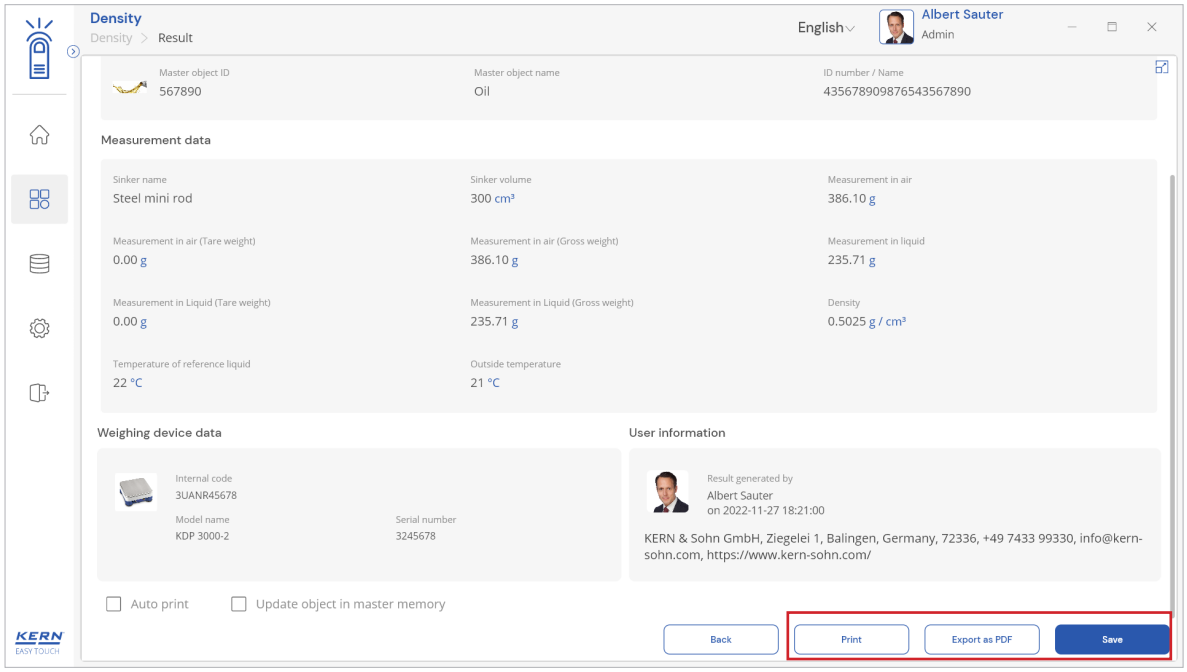
4.6.1 Add object from memory

The user might be able to pick an object from the memory where you can predefine list of objects what you use frequently. The object in the memory can be reutilized.



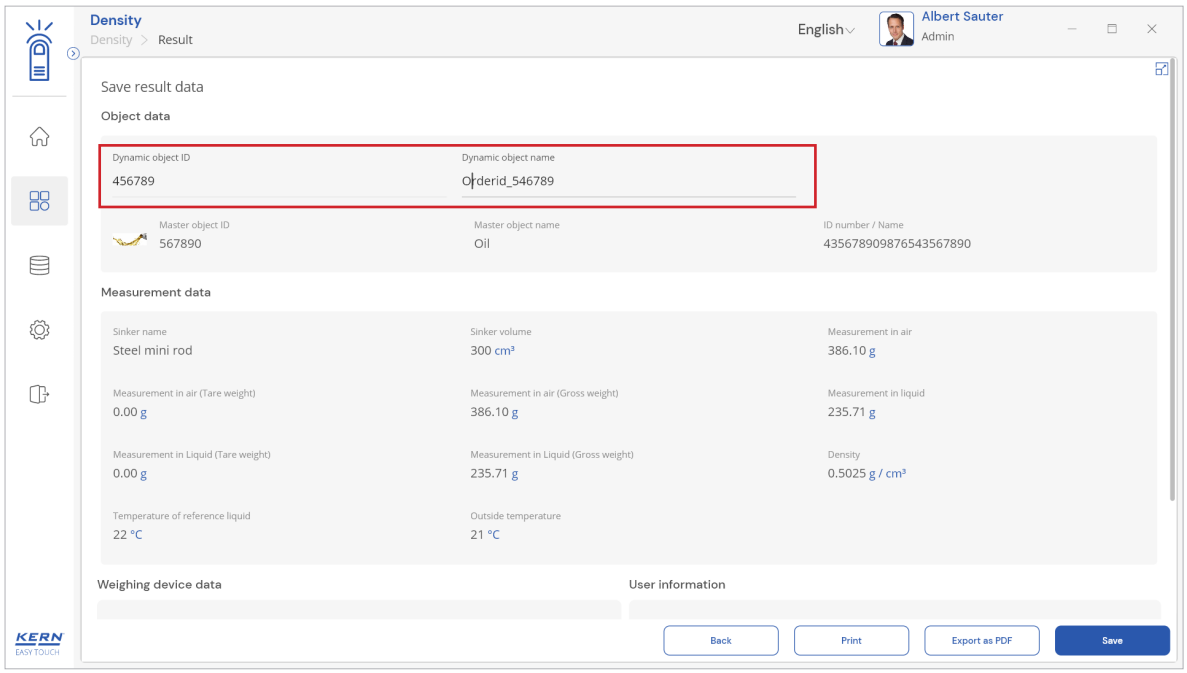
4.6.2 PDF, print and save

The user can save the data, generate the result data as an PDF or excel or print the results. All the saved results would be found in the dynamic database.



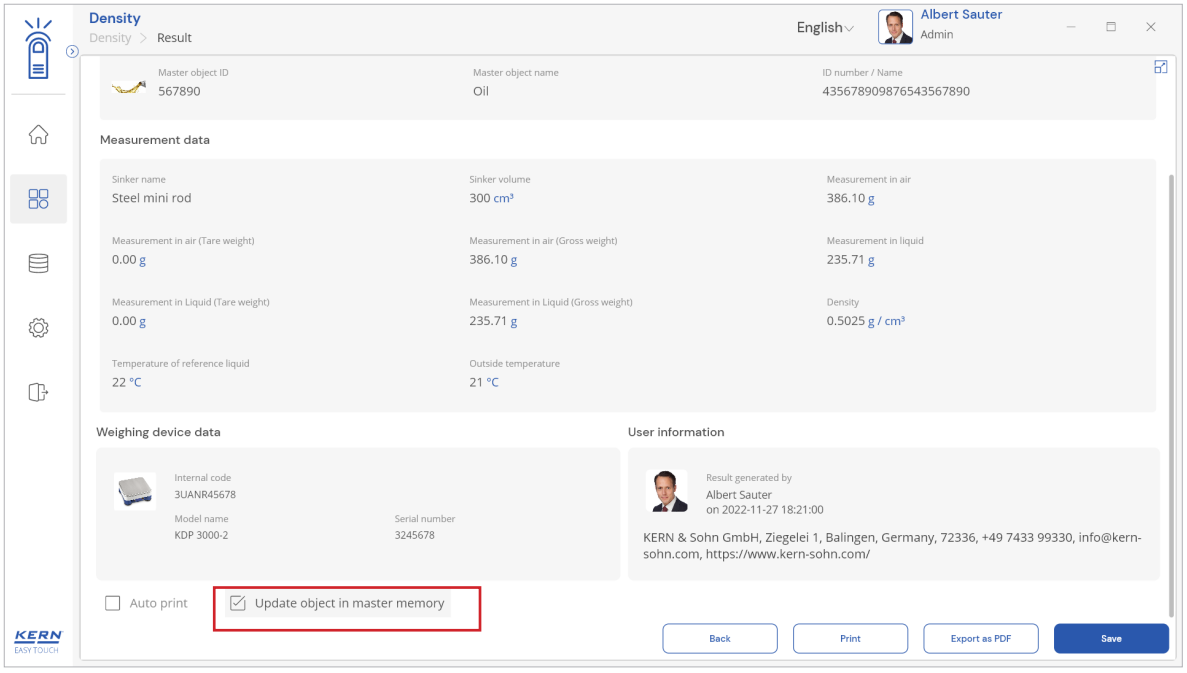
4.6.3 Dynamic object ID and name

The user can enter a reference id and name to the weighing objects to stay unique and search based on the dynamic id and name in the dynamic database (after the result data is being saved) regarding the weighing results of an object.



4.6.4 Update object in master memory

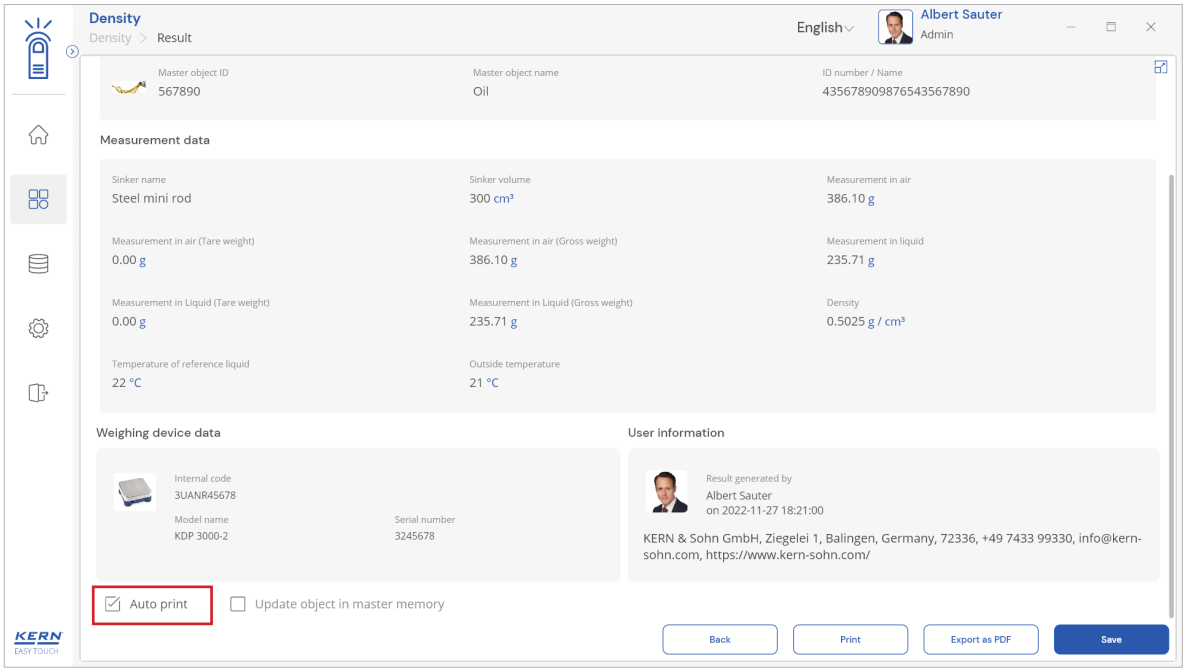
The user can be able to save the functional properties of the object in the master memory to reutilize the data by clicking on the “update object in master memory”.



For example, the sinker object, the volume and temperature will be updated in the master memory and can be utilized for future purposes.

4.6.5 Auto print

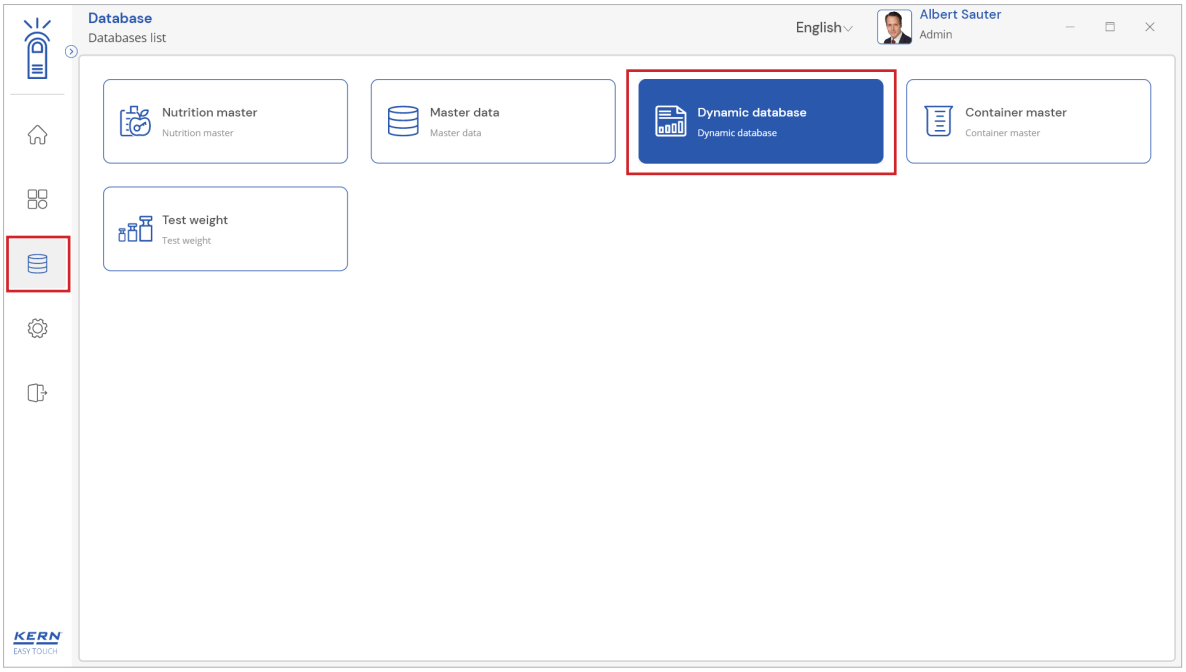
The user will have an option to save and print on a single click. This allows the user to print the data with the measurement ID.



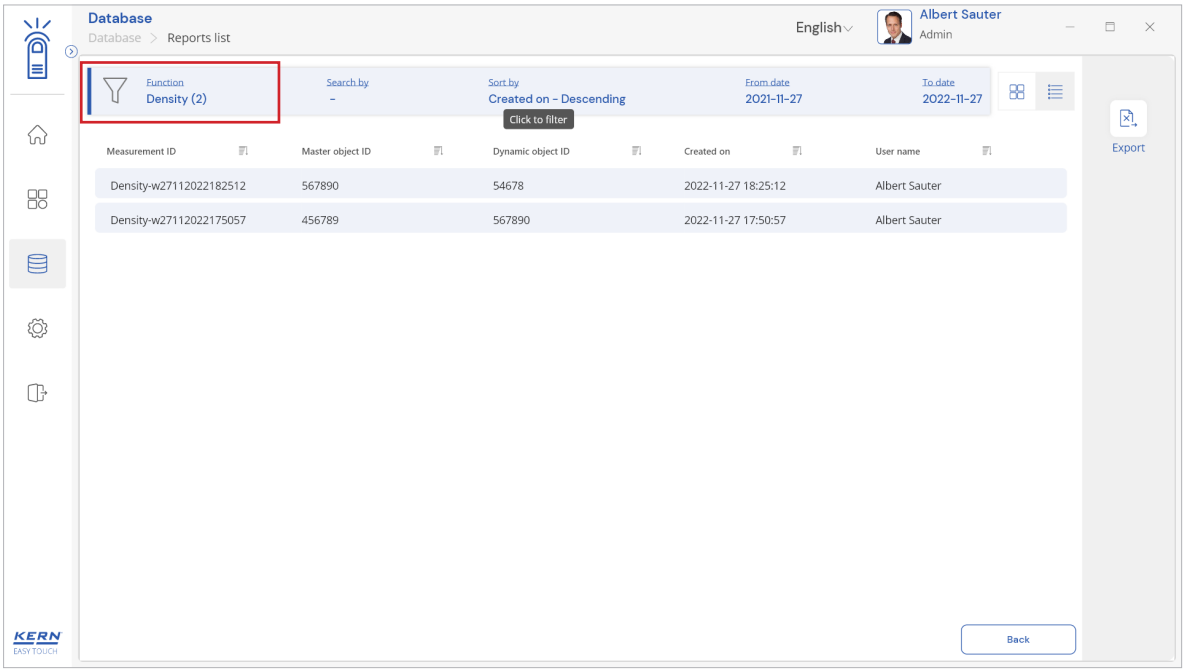
Once the save button is clicked, the balance is again on weighing mode.

5.0 Dynamic data

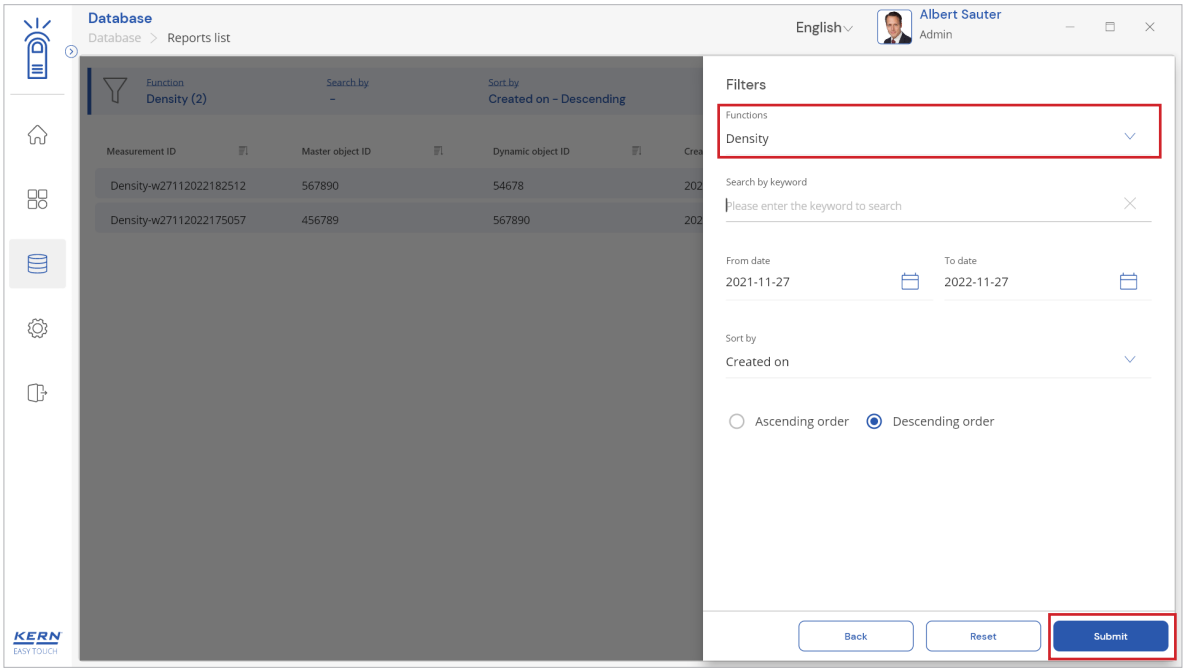
- All the saved data would be found in the dynamic database. Click on the database icon and navigate to the dynamic database



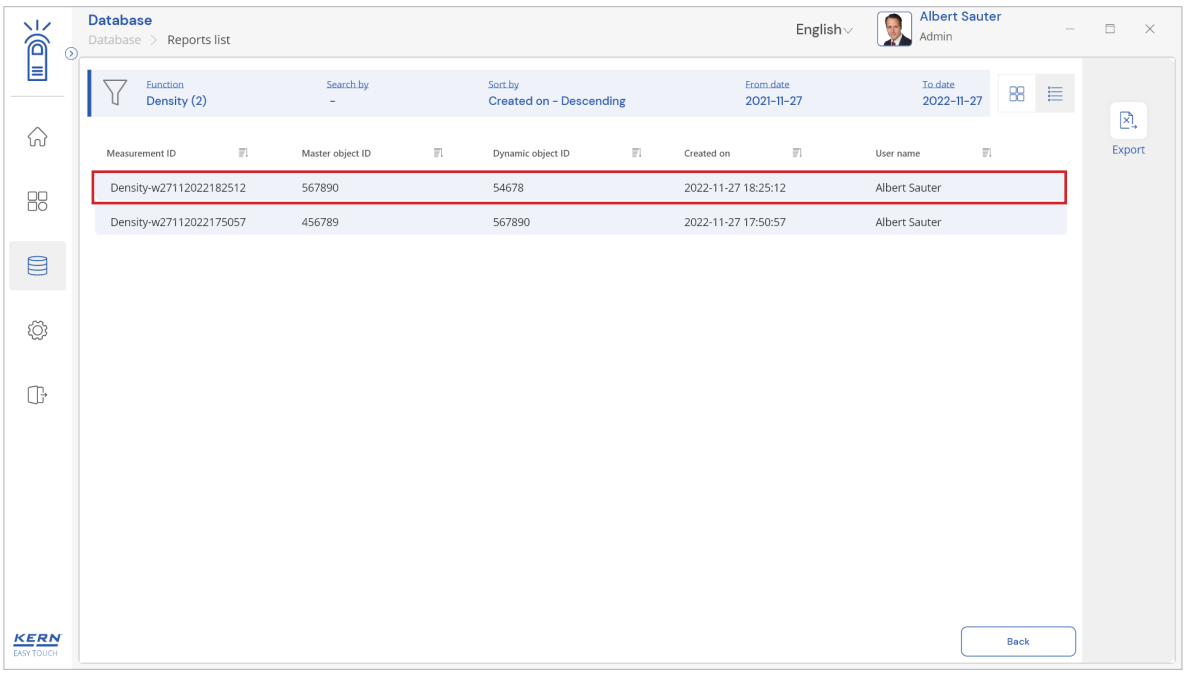
- Click on the filter and the below screen would be displayed. Kindly note, the latest function used would be displayed by default.



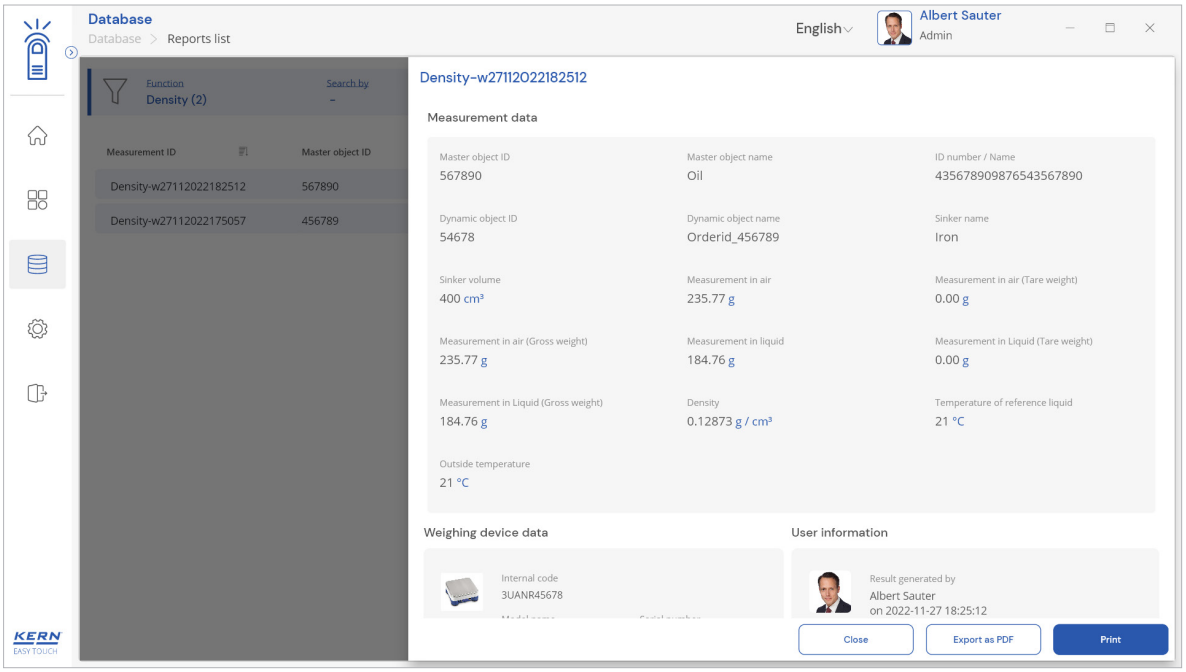
- Choose the function density from the functions list and set the other desired filters and the required sort of option



- The list of dynamic data saved against the set filter would be found here



- Click on the required transactional data to see the complete set of result details.


Database
Database > Reports list
English
Albert Sauter
Admin
Function
Density (2)
Search by
Measurement ID
Master object ID
Density-w27112022182512
567890
Density-w27112022175057
456789
Density-w27112022182512
Measurement data
Master object ID
567890
Master object name
Oil
ID number / Name
435678909876543567890
Dynamic object ID
54678
Dynamic object name
Orderid_456789
Sinker name
Iron
Sinker volume
400 cm³
Measurement in air
235.77 g
Measurement in air (Tare weight)
0.00 g
Measurement in air (Gross weight)
235.77 g
Measurement in liquid
184.76 g
Measurement in Liquid (Tare weight)
0.00 g
Measurement in Liquid (Gross weight)
184.76 g
Density
0.12873 g / cm³
Temperature of reference liquid
21 °C
Outside temperature
21 °C
Weighing device data
Internal code
3UANR45678
User information
Result generated by
Albert Sauter
on 2022-11-27 18:25:12
Close
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The end

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