

# COMAR

## The Database for Certified Reference Materials

### User Guide

How to search the COMAR database?

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**Central Secretariat**  
c/o Federal Institute for Materials  
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## Introduction

COMAR is the international database for certified reference materials. At present, the database contains information on nearly 11000 RMs from about 220 producers in 25 countries.

### History and Status

In the late 1970s, the French Laboratoire National d'Essais (LNE) proposed an index CODE of Reference MATERIALS (hence COMAR) to make it possible to catalogue the various characteristics of RMs in a form easily managed by computer and enabling the RMs to be selected according to user needs.

A prototype of such a database was prepared and later put into full-scale operation in co-operation with the German Federal Institute for Materials Research and Testing (BAM) and the British Laboratory of the Government Chemist (LGC), thus creating an initial database of more than 3 000 RMs. In the years that followed, 13 further members joined the COMAR consortium.

Responsible for input and maintenance of the data in COMAR are the so-called coding centres in each of the 20 partner countries, and the work is co-ordinated by a central secretariat. This secretariat was initially hosted by LNE and since 1998 by BAM.

In 2001, the development of a user-friendly and internet capable version of COMAR was initiated and commissioned by BAM. This product was developed by CONET Consulting AG, Dresden, Germany. COMAR is available on the BAM server since March 2003.

In 2007, COMAR software was updated by CONET Consulting AG, Berlin, Germany.

### Technical Requirements

All standard internet browsers may be used (Internet Explorer version  $\geq 6.0$  and Mozilla Firefox). The site has been designed for a screen resolution of 800x600 Pixel.

COMAR uses cookies to handle your session data. It will not work with cookies turned off.

Rita Pradel  
Berlin, January 2008

## Use of the COMAR database

COMAR is a web-based ORACLE database which can be accessed by browsers like Microsoft Internet Explorer ≥ 6.0 and Mozilla Firefox.

COMAR uses cookies to handle your session data. It will not work with cookies turned off.

After the first call of COMAR, there are three security checks. Please confirm your agreement with "OK" or "YES". This is important for the error free search in COMAR. After the security checks, you will see the normal Login Screen of COMAR.

This site uses cookies to handle your session data. It will not work with cookies turned off.

To use the COMAR database it is necessary to register. Already registered users should enter their user name and password and click on the "Login" button below. New users should click on the "Sign Up" button.

User

Password

[Logout - www.comar.bam.de](http://www.comar.bam.de)

**Sign Up:** Registration for a new COMAR-user

**Edit Profile:** Possibility of modifying your profile

**Login:** Go to the COMAR start page

**Cancel:** Go to the COMAR homepage <http://www.comar.bam.de>

A new user must first register at the COMAR Central Secretariat using the button  .

## Sign up screen for registration

This site uses cookies to handle your session data. It will not work with cookies turned off.

### Sign Up

User

Email

Select your preferred language. English

Password

Retype password

Comment

[Logout - www.comar.bam.de](#)

**Please notice that :** The fields “User” and “Password” are case sensitive.  
The Password must at least contain 6 characters.

If the user name already exists, please select another user name.

After you have been successfully registered, please click the button “Login” and you will have access to COMAR.

**During your work with COMAR, please make use of COMAR’s own navigation facilities and not of your browser’s back and forward functions.**

## Start screen

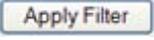
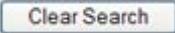
The screenshot shows the start screen of the COMAR system. At the top, there is a header bar with 'Startpage' on the left, 'COMAR VERSION 2.37' in the center, and user information 'rpradel' and 'guest' on the right. Below the header, the word 'COMAR' is displayed in a light blue bar. The main content area features a list of six search categories, each with a blue header and a corresponding description. At the bottom, there is a 'Logout - www.comar.bam.de' button.

COMAR	
<b>CRM Name/ Description</b>	Search by CRM name, catalogue number or in the field description
<b>Physical Property</b>	Search by physical properties
<b>Conventional Property</b>	Search by standardized properties
<b>Fields of Application</b>	Search by fields of application
<b>CRM Form</b>	Search by form of material
<b>Composition</b>	Search by content of molecules and elements

Logout - [www.comar.bam.de](http://www.comar.bam.de)

The start screen provides six possibilities for searching.

**Basic information regarding your search:**

- Select or enter your search criteria and click the button .
- If there is no button  on the right side click the button .
- To open the marked catalogue (e.g. ) click the button .
- Before you start a new search click the button .

**Wildcard:** %

**Boolean operators:** **A** = and  
**N** = not  
**O** = or

A Boolean operator block is shown after each query or refinement, as shown below. Naturally, it does not affect your query if you select „**A**“ or „**O**“ in front of the first query criterion (soil in this example) as long as it is not “N”. And generally, the order of priority is A=N>O.

CRM Name			
A	N	O	
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	soil
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	

<--- in this line. <b>A</b> and <b>O</b> have the same function
<--- in this line, priority is <b>A=N&gt;O</b>

**Please note:** The specific search results given in this guide are only examples. The COMAR database is permanently updated via Internet. Therefore topical results may differ from the given examples.

Search results are strongly depends on the way which CRM information are encoded (e.g. Is the word “steel” used in the CRM description or not). Therefore please try different ways to construct your query.

## Search by CRM Name or in the Field Description

Each material in the database has a CRM name or number assigned to it by the producer. This option enables a quick search for the desired material if the CRM name is known.

navigation bar ←

COMAR Startpage	CRM Name/ Description	Physical Property	Conventional Property	Fields of Application	CRM Form	Composition
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<b>Number of CRMs found: 10899</b>	
CRM Name	<input type="text"/>
A N O	Description <input type="button" value=" [+]"/>
<input type="checkbox"/> Country	
<input type="checkbox"/> Producer	
<input type="button" value=" Apply Filter"/>	<input type="button" value=" Show Results"/>
<input type="button" value=" Clear Search"/>	

**Example:** Searching for all materials starting with the CRM name “BAM”.

Type “BAM” in the field “CRM Name” and start the search by clicking the button

The result is: 146 CRMs were found.

COMAR Startpage	CRM Name/ Description	Physical Property	Conventional Property	Fields of Application	CRM Form	Composition
-----------------	-----------------------	-------------------	-----------------------	-----------------------	----------	-------------

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<b>Number of CRMs found: 146</b>	
CRM Name	<input type="text" value="BAM"/>
A N O	Description <input type="button" value=" [+]"/>
<input type="checkbox"/> Country	
<input type="checkbox"/> Producer	
<input type="button" value=" Apply Filter"/>	<input type="button" value=" Show Results"/>
<input type="button" value=" Clear Search"/>	

Now you can view the results by clicking the button

- through the field “Description”
- through the field “Country”
- through the field “Producer “

**Example:** Suppose your next criterion is the keyword “surface area”. Click the button  to open the field “Description”. Type “surface area” in this field and start the search by clicking the button

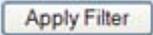
The result is: 4 CRMs were found.

COMAR Startpage	CRM Name/ Description	Physical Property	Conventional Property	Fields of Application	CRM Form	Composition
-----------------	-----------------------	-------------------	-----------------------	-----------------------	----------	-------------

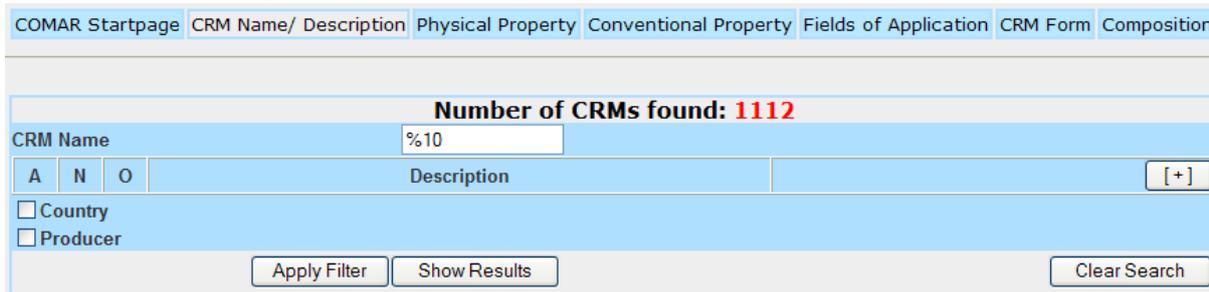
---

<b>Number of CRMs found: 4</b>	
CRM Name	<input type="text" value="BAM"/>
A N O	Description <input type="button" value=" [+]"/>
<input checked="" type="radio"/> <input type="radio"/> <input type="radio"/>	surface area <input type="button" value=" [-]"/>
<input type="checkbox"/> Country	
<input type="checkbox"/> Producer	
<input type="button" value=" Apply Filter"/>	<input type="button" value=" Show Results"/>
<input type="button" value=" Clear Search"/>	

**Example:** If you enter only a fragment of the CRM name, then use the wildcard “%”. For example to find all CRMs containing the fragment “10”.

Write “%10” and click the button  to start the search.

The result is: 1112 CRMs were found.

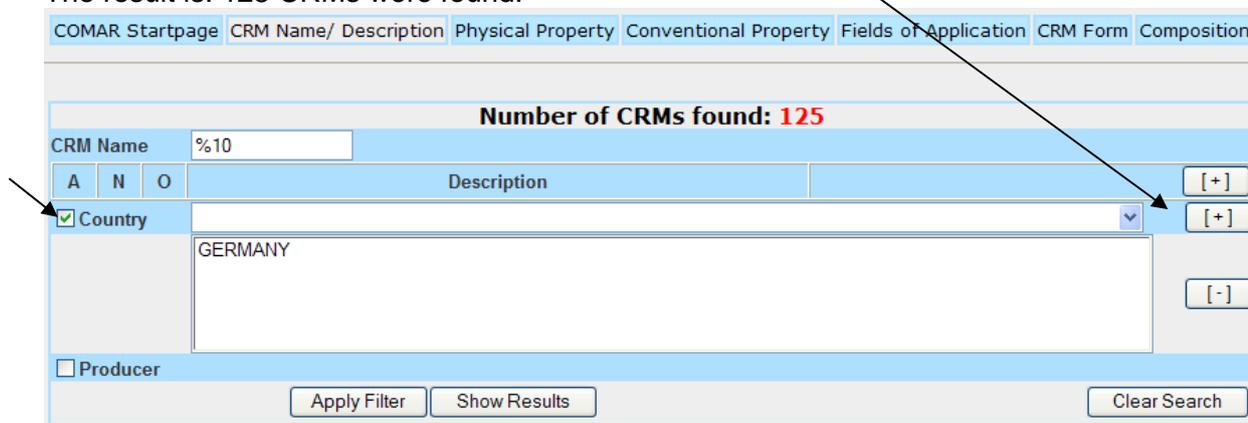


The screenshot shows a search interface with a navigation bar at the top containing links: COMAR Startpage, CRM Name/ Description, Physical Property, Conventional Property, Fields of Application, CRM Form, and Composition. Below the navigation bar, a header displays "Number of CRMs found: 1112" in red. The search criteria are: CRM Name: %10, with buttons A, N, O; Description: (empty), with a [+] button; Country: (unchecked checkbox); Producer: (unchecked checkbox). At the bottom are buttons: Apply Filter, Show Results, and Clear Search.

**Next step:** To select CRMs from a specific country (e.g. Germany) only, tick the country box and click the button , in order to activate the catalogue of countries.

Select Germany and start the search with the button .

The result is: 125 CRMs were found.



The screenshot shows the search interface after filtering by country. The header displays "Number of CRMs found: 125" in red. The search criteria are: CRM Name: %10, with buttons A, N, O; Description: (empty), with a [+] button; Country: (checked checkbox) with a dropdown menu showing "GERMANY" and a [+] button; Producer: (unchecked checkbox) with a [-] button. At the bottom are buttons: Apply Filter, Show Results, and Clear Search. An arrow points from the [+] button in the previous screenshot to the [+] button next to the Country dropdown.

The selected country appears in the box below. You can select all countries which appear in the catalogue. If you want to remove countries from the “List Countries” box, first select the country and then click the button .

The same holds for the catalogue “Producer”.

## Search by the Field Description

The description field enables a string search for any characters in that field used by the person who has entered the reference material.

**Example:** Search for materials with the description “soil”.

COMAR Startpage CRM Name/ Description Physical Property Conventional Property Fields of Application CRM Form Composition

**Number of CRMs found: 10899**

CRM Name

A	N	O	Description	[+]
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		[+]

Country  
 Producer

Apply Filter Show Results Clear Search

Click the button **[+]** to open the field “Description” and type “soil” in the description field.

Click the button **Apply Filter** to start the search.

The result is: 110 CRMs were found.

COMAR Startpage CRM Name/ Description Physical Property Conventional Property Fields of Application CRM Form Composition

**Number of CRMs found: 110**

CRM Name

A	N	O	Description	[+]
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	soil	[+]
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		[-]

Country  
 Producer

Apply Filter Show Results Clear Search

But you may not want “gasoil”

Click the button **[+]** again to open an new description field.

Type “gasoil” in the second line, select “N” and click the button **Apply Filter** to start the search.

COMAR Startpage CRM Name/ Description Physical Property Conventional Property Fields of Application CRM Form Composition

**Number of CRMs found: 107**

CRM Name

A	N	O	Description	[+]
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	soil	[+]
<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	gasoil	[-]

Country  
 Producer

Apply Filter Show Results Clear Search

The result is: 107 CRMs were found.

By clicking the button **[-]** you can remove the description field or you can overwrite the search criteria. By clicking the button **Clear Search** the search is cancelled.

**Example:** Search all materials containing the words “soil” and „sediment“ in the description.  
 Click the button  to open the field “Description” and type “soil” in the field.  
 Click the button  to open the second field of description and type “gasoil” in the field, select “N”.  
 Click the button  to open the third field of description and type “sediment” in the field, select “O” and click the button  to start the search.  
 Please note the correct order: (1) “A” soil, (2) “N” gasoil, (3) “O” sediment.

The result is: 202 CRMs were found.

COMAR Startpage CRM Name/ Description Physical Property Conventional Property Fields of Application CRM Form Composition

**Number of CRMs found: 202**

CRM Name

A	N	O	Description	
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	soil	<input type="button" value="[-]"/>
<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	gasoil	<input type="button" value="[-]"/>
<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	sediment	<input type="button" value="[-]"/>

Country  
 Producer

**Next step could be:** To select all CRMs from Japan only, tick the country box and click the button , in order to activate the catalogue of countries.  
 Select Japan and start the search with the button

The result is: 16 CRMs were found.

COMAR Startpage CRM Name/ Description Physical Property Conventional Property Fields of Application CRM Form Composition

**Number of CRMs found: 16**

CRM Name

A	N	O	Description	
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	soil	<input type="button" value="[-]"/>
<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	gasoil	<input type="button" value="[-]"/>
<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	sediment	<input type="button" value="[-]"/>

Country

Producer

The selected country appears in the box below. You can select all countries which appear in the catalogue. If you want to remove countries from the “List Countries” box, first select the country and then click the button .  
 The same holds for the catalogue “producer”.

## Search by Physical Property

This search path allows the search for CRMs with certified physical properties. The displayed catalogue contains the corresponding physical properties with which CRMs are connected.

COMAR Startpage CRM Name/ Description Physical Property Conventional Property Fields of Application CRM Form Composition

Number of CRMs found: 1970

Physical Property [▼] [+]

Country  
 Producer

Apply Filter Show Results Clear Search

**Example:** Select the physical property from the catalogue and start the search by clicking button **[+]**.

COMAR Startpage CRM Name/ Description Physical Property Conventional Property Fields of Application CRM Form Composition

Number of CRMs found: 1970

Physical Property [▼] [+]

Country  
 Producer

- Absolute activity of B (8-18)
- Absorbance (7-27.4)
- Activity (9-33)
- Amount concentration (8-13)
- Angle (1-1)
- Area (1-5)
- Calorific value (other)
- Celsius temperature (4-2)
- Cloud point (other)
- Cold filter plugging point (other)
- Colour temperature (other)
- Conductivity (5-37)
- content (other)
- Crystal lattice parameters (13-3z)
- Cubic expansion coefficient (4-3.2)
- Density (3-2)
- Diameter (1-3.6)
- Dynamic viscosity (3-23)
- Electrolytic conductivity (8-48)
- Enthalpy of fusion (4-20.3x)
- Enthalpy of sublimation (4-20.3z)
- Freezing point (other)
- Half life (9-37)
- Isotopic Ratio (other)
- Isotopic Ratio (235 U) / (238 U) (other)
- Kinematic viscosity (3-24)
- Length (1-3.1)
- Linear expansion coefficient (4-3.1)
- Luminous flux (6-30)

Search

**Example:** Search for conductivity.

Select "Conductivity" from the catalogue and click the button **[+]**.

The result is: 10 CRMs were found.

Number of CRMs found: 10

Physical Property [▼] [+]

A	N	O	Physical Property	Unit	min	max	..
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Conductivity (5-37)	S/m			[·]

Country  
 Producer

Apply Filter Show Results Clear Search

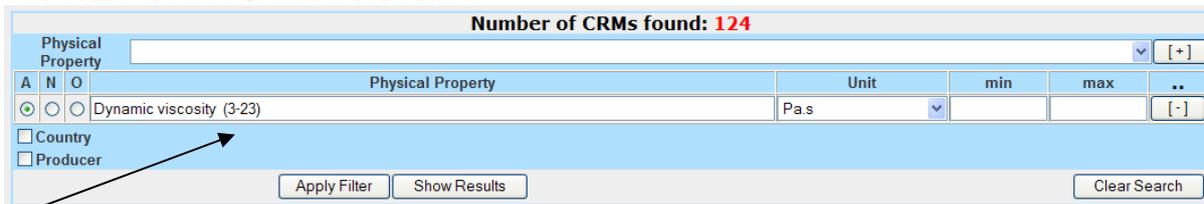
(5-37) is the ISO-code from ISO Standards Handbook "Quantities and units" (1993)

By clicking the button **[·]** or **Clear Search** you can remove the selected physical property.

**Example:** Search for dynamic viscosity.

Select "Dynamic viscosity" from the catalogue and click the button .

The result is: 124 CRMs were found.



The screenshot shows a search interface with the following elements:

- Header: "Number of CRMs found: 124"
- Search bar: "Physical Property" with a dropdown arrow and a "[+]" button.
- Table with columns: "A", "N", "O", "Physical Property", "Unit", "min", "max", and "..".
- Row 1: "Dynamic viscosity (3-23)", "Pa.s", empty "min" and "max" fields, and a "[-]" button.
- Filters: "Country" and "Producer" checkboxes.
- Buttons: "Apply Filter", "Show Results", and "Clear Search".

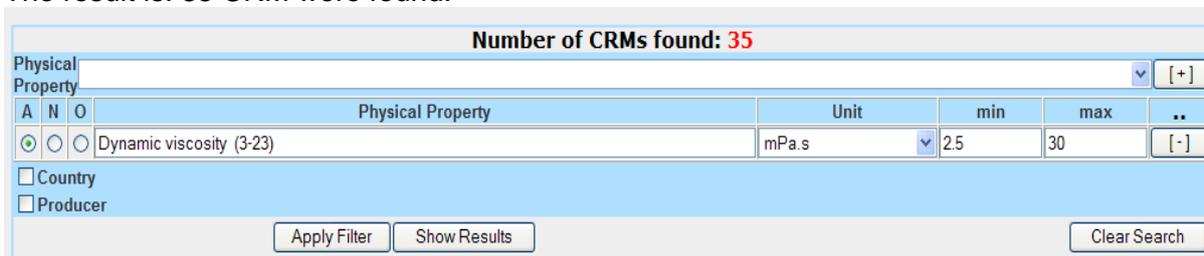
(3-23) is the ISO-code from the ISO Standards Handbook "Quantities and units" (1993)

Now you can limit the search by the criteria minimum and maximum value.

Select the unit "mPa.s" from the catalogue.

Type "2.5" in the field min and "30" in the field max and choose the unit "mPa.s" from the catalogue. Start the search by clicking the button .

The result is: 35 CRM were found.



The screenshot shows the search interface with the following updates:

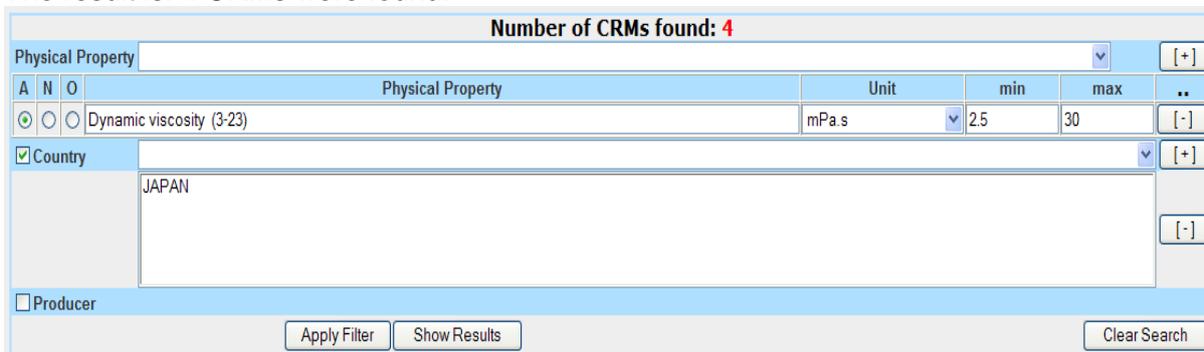
- Header: "Number of CRMs found: 35"
- Table: The "Unit" column now shows "mPa.s", and the "min" and "max" columns contain the values "2.5" and "30" respectively.
- Buttons: The "Apply Filter" button is highlighted.

You can change the values by overwriting or deleting and start the search by clicking the button . By clicking the button  or  you can remove the physical property.

You can also search by country and producer. Mark the fields on the left side and click the button . The catalogues will then appear containing all countries or producers providing the CRMs.

**Example:** Mark the field country and click the button  to open the catalogue and select the country "Japan". Click the button  to start the search. The selected country appears in the box below.

The result is: 4 CRMs were found.



The screenshot shows the search interface with the following updates:

- Header: "Number of CRMs found: 4"
- Filters: The "Country" checkbox is checked, and a dropdown menu shows "JAPAN" selected.
- Buttons: The "Apply Filter" button is highlighted.

You can select all countries which appear in the catalogue. If you want to remove countries from the "List countries" box, first select the country and then click the button . The same holds for the catalogue "Producer".

## Search by Conventional Property

This search path allows the search for CRMs with certified conventional properties. The displayed catalogue contains the corresponding conventional properties with which CRMs are connected.

COMAR Startpage CRM Name/ Description Physical Property Conventional Property Fields of Application CRM Form Composition

Number of CRMs found: **349**

Conventional Property  [ + ]

Country  
 Producer

Apply Filter Show Results Clear Search

**Example:** Select the property “BET method/DIN 66131” from the catalogue “Conventional Property” and start the search by clicking the button .

The result is 4 CRMs were found.

COMAR Startpage CRM Name/ Description Physical Property Conventional Property Fields of Application CRM Form Composition

Number of CRMs found: **4**

Conventional Property  [ + ]

A	N	O	Conventional Property	Unit	min	max	..
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	BET method · DIN 66131	m2/kg			[ - ]

Country  
 Producer

Apply Filter Show Results Clear Search

You can limit the search by the criteria “min” and “max” value. Select the unit and start the search by clicking the button . You can change the values by overwriting or deleting and start the search by clicking the button . You can also search by country and producer. Mark the fields on the left side and click the button .

Number of CRMs found: **4**

Conventional Property  [ + ]

A	N	O	Conventional Property	Unit	min	max	..
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	BET method · · · DIN 66131	m2/kg			[ - ]

Country  [ + ] [ - ]

Producer  [ + ] [ - ]

Apply Filter Show Results Clear Search

Select a country from the catalogue and start the search by clicking the button . The selected country appears in the box below. You can select all countries which appear in the catalogue. If you want to remove countries from the “List Countries” box, first select the country and then click the button . The same holds for the catalogue “Producer”.

## Search by Field of Application

This search path allows the search for CRMs according to the ISO REMCO pre-defined list of fields of application. One and the same CRM can be assigned to various fields of application.

COMAR Startpage CRM Name/ Description Physical Property Conventional Property Fields of Application CRM Form Composition

Number of CRMs found: **10899**

Field of Application  [ + ]

Country  
 Producer

Apply Filter Show Results Clear Search

**Example:** Select “Quality of Life” from the catalogue “Field of Application” and click button  to start the search.

The result is: 1787 CRMs were found.

COMAR Startpage CRM Name/ Description Physical Property Conventional Property Fields of Application CRM Form Composition

Number of CRMs found: **1787**

Field of Application  [ + ]

A	N	O	Field of Application	
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Quality of Life	[ - ]

Sub Field of Application 1  [ + ]

Country  
 Producer

Apply Filter Show Results Clear Search

Select “Foodstuffs” from the catalogue “Sub Field of Application 1” and click button  to start the search.

The result is: 337 CRMs were found.

COMAR Startpage CRM Name/ Description Physical Property Conventional Property Fields of Application CRM Form Composition

Number of CRMs found: **337**

Field of Application  [ + ]

A	N	O	Field of Application	
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Quality of Life	[ - ]

Sub Field of Application 1  [ + ]

A	N	O	Sub Field of Application 1 of Quality of Life	
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Foodstuffs	[ - ]

Country  
 Producer

Apply Filter Show Results Clear Search

If you want to remove a Field of Application then click the button .

You can also search by country. Mark the field on the left side and click the button .

Select the countries “Belgium” and “Germany” from the catalogue and start the search by clicking the button . The selected countries appear in the box below.

The result is: 215 CRMs were found.

COMAR Startpage CRM Name/ Description Physical Property Conventional Property Fields of Application CRM Form Composition

**Number of CRMs found: 215**

Field of Application [v] [+]

A N O Field of Application ..

Quality of Life [-]

Sub Field of Application 1 [v] [+]

A N O Sub Field of Application 1 of Quality of Life ..

Foodstuffs [-]

Country [v] [+]

BELGIUM  
GERMANY [-]

Producer [v] [+]

[-]

Apply Filter Show Results Clear Search

You can select all countries which appear in the catalogue. If you want to remove countries from the “List Countries” box , first select the country and then click the button . The same holds for the catalogue “Producer”.

## Search by CRM Form

COMAR Startpage CRM Name/ Description Physical Property Conventional Property Fields of Application CRM Form Composition

Number of CRMs found: **10899**

Form

Country  
 Producer

**Example:** Select “cylinders, mushrooms, plates, discs” from the catalogue “Form” and start the search by clicking the button .

The result is: 3429 CRMs were found.

COMAR Startpage CRM Name/ Description Physical Property Conventional Property Fields of Application CRM Form Composition

Number of CRMs found: **3429**

FOM

A	N	O	FOM	
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	cylinders,mushrooms,plates,discs	<input type="button" value="[-]"/>

Country  
 Producer

If you want to remove the CRM Form then click the button . Also you can search by country. Mark the field on the left side and click the button .

COMAR Startpage CRM Name/ Description Physical Property Conventional Property Fields of Application CRM Form Composition

Number of CRMs found: **3429**

FOM

A	N	O	FOM	
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	cylinders,mushrooms,plates,discs	<input type="button" value="[-]"/>

Country

Producer

Select a country from the catalogue and start the search by clicking the button . The selected country appears in the box below. You can select all countries which appear in the catalogue. If you want to remove countries from the “List Countries” box, first select the country and then click the button . The same holds for the catalogue “Producer”.

## Search by Element or Molecule Composition

COMAR Startpage CRM Name/ Description Physical Property Conventional Property Fields of Application CRM Form Composition

**Number of CRMs found: 10899**

Element   Molecule / CAS\_No.

Main Application

A N O  Description  Form

Country

Producer

Basic information regarding your search.

For performance reasons the catalogues “Element”; “Molecule” and “Main Application” show their entire keyword contents (also in cases where no reference material for a specific keyword exist) whereas the “Form”, “Country” and “Producer” catalogues only show you a **specific subset** that is currently available within your query results and from which you can select additional search criteria. Therefore you will get in some cases no hit.

If you refine your query by selecting criteria from more than one catalogue, please be aware that the “O” operator has **the same function** as the “A” operator. However, the search operators have their normal functions when you refine **within the same catalogue**, as shown in the following examples.

**Example:** Searching for CRMs for the determination of Oxygen and Nitrogen in steel.

Select “O” from the catalogue “Element” and click the button 

The result is: 28 CRMs were found.

**Number of CRMs found: 28**

Element  | A | N | O | Element | Unit | min | max | .. |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | O | % | 0.002 | 0.05 |  |  |  | N | % | 0.0001 | 0.05 | Molecule / CAS\_No. |

Main Application

A N O  Description  Form

Country

Producer

- 17 -

Open the field “Description” by clicking button **[+]** and type steel in the description field. Start the search by clicking button **Apply Filter**.

The result is: 18 CRMs were found.

The screenshot shows the COMAR search interface with the following elements:

- Navigation tabs: COMAR Startpage, CRM Name/ Description, Physical Property, Conventional Property, Fields of Application, CRM Form, Composition.
- Search results summary: Number of CRMs found: 18.
- Element filter: A dropdown menu for Element selection.
- Search criteria table:

A	N	O	Element	Unit	min	max	..
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="text"/>	%	0.002	0.05	<input type="button" value="[-]"/>
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="text"/>	%	0.0001	0.05	<input type="button" value="[-]"/>

- Additional filters: Molecule / CAS\_No., Main Application, Form, Country, Producer.
- Buttons: Apply Filter, Show Results, Clear Search.
- Search criteria table:

A	N	O	Description	[+]
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="text" value="steel"/>	<input type="button" value="[-]"/>

A red arrow points to the **[+]** button in the Description row of the search criteria table.

If you want to remove the Element then click the button **[-]**. You can also limit the search by using other catalogues or search criteria.

#### Note:

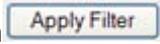
If you refine your query by selecting criteria from more than one catalogue, please be aware that the “O” operator has the same function as the “A” operator. However, the search operators have their normal functions when you refine within the same catalogue, as shown in the examples.

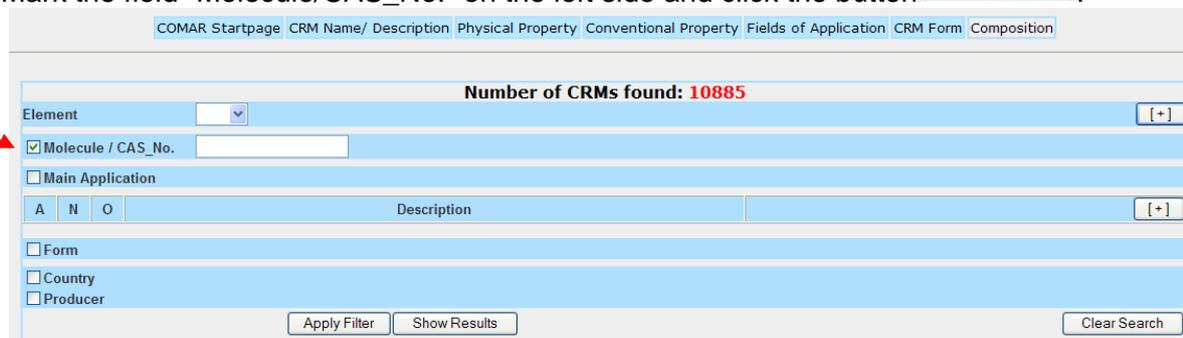
Regarding the “Element” query block also shown in the above example, please be aware that from the introduction you may recall that it does not affect your query if you select „A“ or „O“ in front of the first query criterion as long as it is not “N”. And generally, the order of priority is A=N>O.

## Search by Molecule / CAS\_No.

Often there is more than one molecule name for the same molecule (synonyms). This becomes a problem if different RMs use different molecule names and you wish to search by name. However, there is a workaround by using the CAS number connected with the molecule. To do this, you can search by the molecule name or the CAS number

**Example:** Search for all RMs containing  $\text{Al}_2\text{O}_3$

Mark the field "Molecule/CAS\_No." on the left side and click the button .



COMAR Startpage CRM Name/ Description Physical Property Conventional Property Fields of Application CRM Form Composition

Number of CRMs found: 10885

Element  [ + ]

Molecule / CAS\_No.

Main Application

A N O Description [ + ]

Form

Country

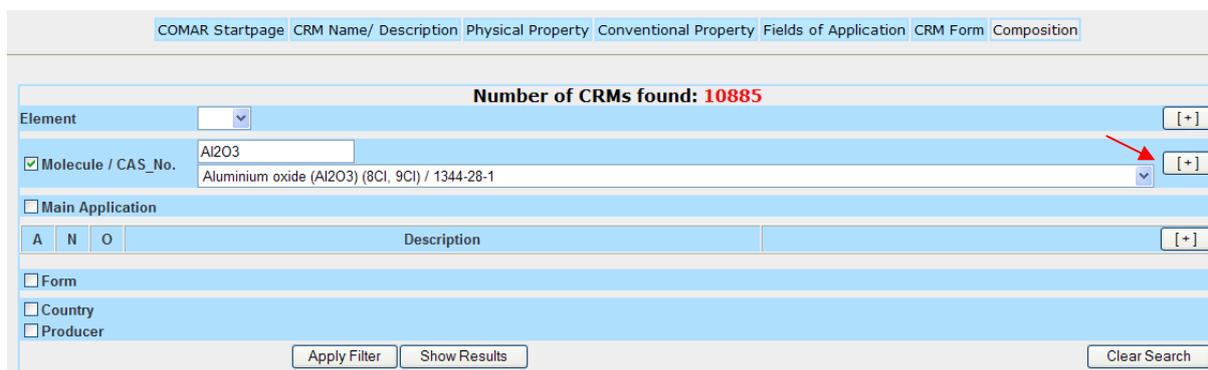
Producer

Apply Filter Show Results Clear Search

Type in the field "Molecule/CAS\_No." the formula " $\text{Al}_2\text{O}_3$ " or the Cas\_No.: "1344-28-1" and click the button .

After that open the catalogue and you will find the molecule name and the CAS\_No.

Select the molecule name and start the search by clicking the button .



COMAR Startpage CRM Name/ Description Physical Property Conventional Property Fields of Application CRM Form Composition

Number of CRMs found: 10885

Element  [ + ]

Molecule / CAS\_No.

Aluminium oxide (Al2O3) (8CI, 9CI) / 1344-28-1 [ + ]

Main Application

A N O Description [ + ]

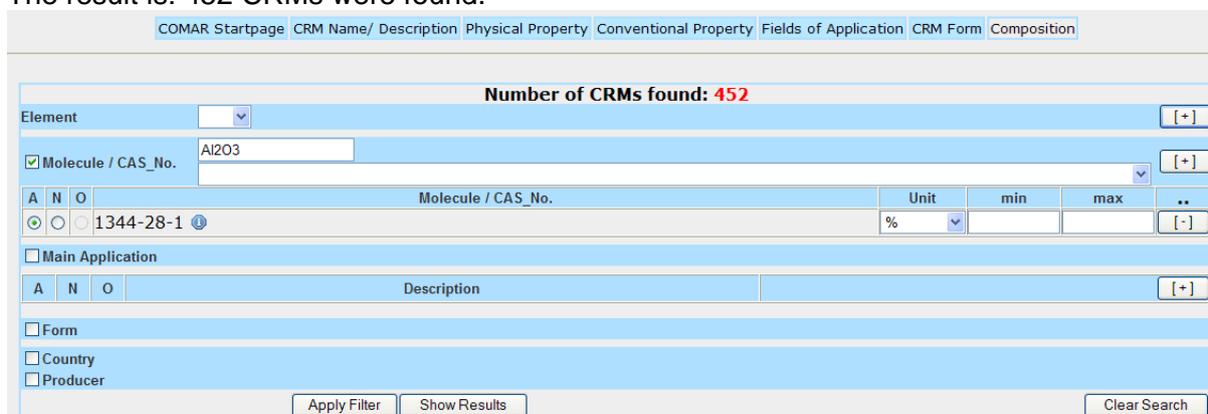
Form

Country

Producer

Apply Filter Show Results Clear Search

The result is: 452 CRMs were found.



COMAR Startpage CRM Name/ Description Physical Property Conventional Property Fields of Application CRM Form Composition

Number of CRMs found: 452

Element  [ + ]

Molecule / CAS\_No.

Aluminium oxide (Al2O3) (8CI, 9CI) / 1344-28-1 [ + ]

A	N	O	Molecule / CAS_No.	Unit	min	max	..
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1344-28-1	%			[ - ]

Main Application

A N O Description [ + ]

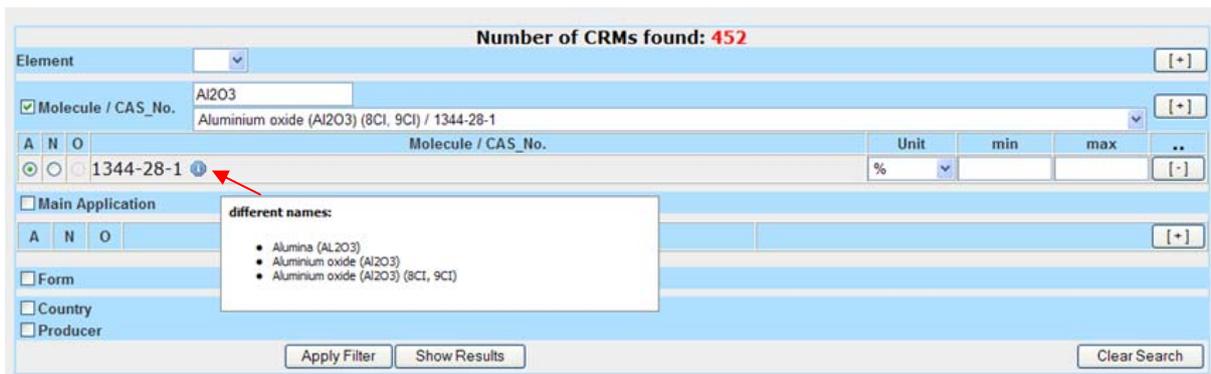
Form

Country

Producer

Apply Filter Show Results Clear Search

By touching button  you will get the information about the different molecule names which are connected to the shown CAS-number.



Number of CRMs found: **452**

Element:  [+]

Molecule / CAS\_No.  [+]

Aluminium oxide (Al2O3) (8CI, 9CI) / 1344-28-1

A	N	O	Molecule / CAS_No.	Unit	min	max	..
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1344-28-1 	%			[ - ]

Main Application

Form

Country

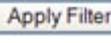
Producer

Apply Filter Show Results Clear Search

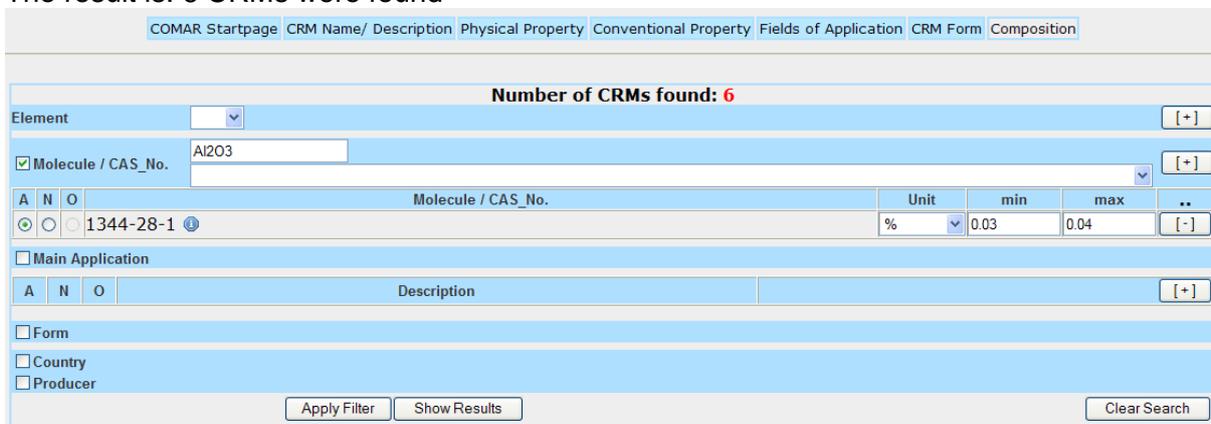
**different names:**

- Alumina (Al2O3)
- Aluminium oxide (Al2O3)
- Aluminium oxide (Al2O3) (8CI, 9CI)

Now you may start to set further criteria; e.g. select the criterion min value "0,03%" and max value "0,04%".

Start the search by clicking the button .

The result is: 6 CRMs were found



COMAR Startpage CRM Name/ Description Physical Property Conventional Property Fields of Application CRM Form Composition

Number of CRMs found: **6**

Element:  [+]

Molecule / CAS\_No.  [+]

Aluminium oxide (Al2O3) (8CI, 9CI) / 1344-28-1

A	N	O	Molecule / CAS_No.	Unit	min	max	..
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	1344-28-1 	%	0.03	0.04	[ - ]

Main Application

Form

Country

Producer

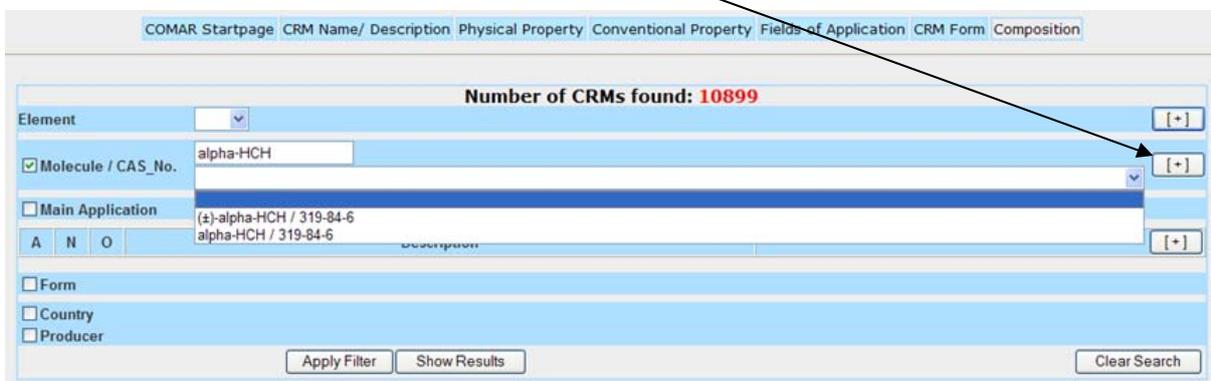
Apply Filter Show Results Clear Search

**Example:** You are looking for CRMs with Organochloropesticides (OCP)

Type in the field "Molecule/CAS\_No." the molecule name "alpha-HCH" or the CAS-No. and click the button .

After that open the catalogue and select the right molecule.

Start the search by clicking the button .



COMAR Startpage CRM Name/ Description Physical Property Conventional Property Fields of Application CRM Form Composition

Number of CRMs found: **10899**

Element:  [+]

Molecule / CAS\_No.  [+]

Main Application

A	N	O	Molecule / CAS_No.	Unit	min	max	..
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	(±)-alpha-HCH / 319-84-6				[ - ]
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	alpha-HCH / 319-84-6				[ - ]

Form

Country

Producer

Apply Filter Show Results Clear Search

The search result: 13 CRMs were found.

COMAR Startpage CRM Name/ Description Physical Property Conventional Property Fields of Application CRM Form Composition

Number of CRMs found: 13

Element  [ + ]

Molecule / CAS\_No.  [ + ]

A	N	O	Molecule / CAS_No.	Unit	min	max	..
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	319-84-6	%			[ - ]

Main Application

Form

Country

Producer

different names:

- alpha-Benzenehexachloride
- alpha-Benzohexachloride
- alpha-BHC
- (s)-alpha-HCH
- alpha-HCH
- alpha-Hexachloran
- alpha-Hexachlorane
- alpha-Hexachlorocyclohexane
- (s)-alpha-Hexachlorocyclohexane
- alpha-Hexachlorocyclohexane
- alpha-Lindane
- alpha-1,2,3,4,5,6-Hexachlorocyclohexane
- alpha-666
- Cyclohexane, 1,2,3,4,5,6-hexachloro-, alpha- (8CI)
- Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1a,2a,3b,4a,5b,6b)- (9CI)

Clear Search

### Combined search by Fields of Application and by Element / Molecule

Please note: For performance reasons the catalogues “Element”; “Molecule” and “Main Application” show their entire keyword contents (also in cases where no reference material for a specific keyword exist) whereas the “Form”, “Country” and “Producer” catalogues only show you a specific subset that is currently available within your query results and from which you can select additional search criteria. Therefore you will get in some cases no hit.

**Example:** Search by fields of application “Non Ferrous” and sub field of application “Al, Mg, Si and Alloys”. Mark the field on the left side and click the button . Select “Non Ferrous” from the catalogue “Main Application” and start the search by clicking the button . The selected field of application appears in the box below. Select “Al, Mg, Si and Alloys” from the catalogue “Sub Application 1” and start the search by clicking the button .

The result is: 895 CRMs were found.

COMAR Startpage CRM Name/ Description Physical Property Conventional Property Fields of Application CRM Form Composition

Number of CRMs found: 895

Element  [ + ]

Molecule / CAS\_No.

Main Application  [ + ]

A	N	O	Main Application	..
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Non Ferrous	[ - ]

Sub Application 1  [ + ]

A	N	O	Sub Application 1 of Non Ferrous	..
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Al, Mg, Si and Alloys	[ - ]

Description  [ + ]

Form

Country

Producer

Next select the element criterion “Al” min value = 90%.

Select “Al” from the catalogue “Element” and click the button  to start the search.

Enter 90 in the field “min” and select the Unit “%”. Click the button  to start the search.

The result is: 412 CRMs were found.

COMAR Startpage CRM Name/ Description Physical Property Conventional Property Fields of Application CRM Form Composition

**Number of CRMs found: 412**

Element  [ + ]

A	N	O	Element	Unit	min	max	..
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Al	%	90		[ - ]

Molecule / CAS\_No.

Main Application  [ + ]

A	N	O	Main Application	..
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Non Ferrous	[ - ]

Sub Application 1  [ + ]

A	N	O	Sub Application 1 of Non Ferrous	..
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Al, Mg, Si and Alloys	[ - ]

A N O Description [ + ]

Form

Country

Producer

Apply Filter Show Results Clear Search

Next select the element criterion “Fe” min value =500 µg/g, max value = 4000 µg/g.

Select “Fe” from the catalogue “Element” and click the button [ + ] to start the search. Enter 500 and 4000 for “min” and “max”. Select the Unit “µg/g” and click the button [ Apply Filter ] to start the search.

The result is: 269 CRMs were found.

COMAR Startpage CRM Name/ Description Physical Property Conventional Property Fields of Application CRM Form Composition

**Number of CRMs found: 269**

Element  [ + ]

A	N	O	Element	Unit	min	max	..
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Al	%	90		[ - ]
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Fe	µg/g	500	4000	[ - ]

Molecule / CAS\_No.

Main Application  [ + ]

A	N	O	Main Application	..
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Non Ferrous	[ - ]

Sub Application 1  [ + ]

A	N	O	Sub Application 1 of Non Ferrous	..
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Al, Mg, Si and Alloys	[ - ]

A N O Description [ + ]

Form

Country

Producer

Apply Filter Show Results Clear Search

Next select the element criterion “Mg” min value = 4% max value = 6% .

Select “Mg” from the catalogue “Element” and click the button [ + ] to start the search.

Enter 4 and 6 for “min” and “max”. Select the Unit “%” and click the button [ Apply Filter ] to start the search.

The result is: 22 CRMs were found.

COMAR Startpage CRM Name/ Description Physical Property Conventional Property Fields of Application CRM Form Composition

**Number of CRMs found: 22**

Element  [+]

A	N	O	Element	Unit	min	max	..
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Al	%	90		[-]
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Fe	µg/g	500	4000	[-]
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Mg	%	4	6	[-]

Molecule / CAS\_No.

Main Application  [+]

A	N	O	Main Application	..
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Non Ferrous	[-]

Sub Application 1  [+]

A	N	O	Sub Application 1 of Non Ferrous	..
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Al, Mg, Si and Alloys	[-]

A N O Description [+]

Form

Country

Producer

Apply Filter Show Results Clear Search

Next criteria is the form of material "chips, granules". Mark the catalogue "Form" and click the button **Apply Filter**. Select "chips, granules" from the catalogue "Form" and click the button **[+]** to start the search.

The result is: 2 CRMs were found.

COMAR Startpage CRM Name/ Description Physical Property Conventional Property Fields of Application CRM Form Composition

**Number of CRMs found: 2**

Element  [+]

A	N	O	Element	Unit	min	max	..
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Al	%	90		[-]
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Fe	µg/g	500	4000	[-]
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Mg	%	4	6	[-]

Molecule / CAS\_No.

Main Application  [+]

A	N	O	Main Application	..
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Non Ferrous	[-]

Sub Application 1  [+]

A	N	O	Sub Application 1 of Non Ferrous	..
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Al, Mg, Si and Alloys	[-]

A N O Description [+]

Form  [+]

A	N	O	Form	..
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	chips, granules	[-]

Country

Producer

Apply Filter Show Results Clear Search

## Combined search by Element / Molecule and Field Description

Please note: For performance reasons the catalogues “Element”; “Molecule” and “Main Application” show their entire keyword contents (also in cases where no reference material for a specific keyword exist) whereas the “Form”, “Country” and “Producer” catalogues only show you a specific subset that is currently available within your query results and from which you can select additional search criteria. Therefore you will get in some cases no hit.

**Example:** Search for some elements in soil. Select the elements As, Cd, Cr, Cu, Hg, Ni, Pb and Zn from the catalogue „Element“ using button .

Open the description input fields by clicking button  on the right side. Write in the first field “soil”, in the second field “gasoil”, change the Boolean operator to “N” and click the button  to start the search.

The result is: 42 CRMs were found.

**Number of CRMs found: 42**

Element

A	N	O	Element	Unit	min	max	..
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	As	%			<input type="button" value="[-]"/>
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Cd	%			<input type="button" value="[-]"/>
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Cr	%			<input type="button" value="[-]"/>
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Cu	%			<input type="button" value="[-]"/>
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Hg	%			<input type="button" value="[-]"/>
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Ni	%			<input type="button" value="[-]"/>
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Pb	%			<input type="button" value="[-]"/>
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Zn	%			<input type="button" value="[-]"/>

Molecule / CAS No.

Main Application

Description

A	N	O	Description	..
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	soil	<input type="button" value="[-]"/>
<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	gasoil	<input type="button" value="[-]"/>

Form

Country

Producer

## Special problem in cases of content ranges

It may happen that for some CRMs a content range is certified. In this special case the **input** can be made by repeated input of the element or molecule with the lowest and the highest content respectively. At present this is only the case for some gas CRMs.

Please be aware that this has also implications for **searching** a content range.

The values typed in for min and max are critical to the results you yield. For example, a He content of 1-50 % in the RM (if this is what is stated in the certificate) can not be found by searching for 20-40 %, but only by including at least one of the border values, e.g. 40-60 %, or 0-30 %, or 0-60 %.

### Example: Certified Reference Gas Mixture

Number of CRMs found: 6						
Element						
A	N	O	Element	Unit	min	max
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	He	mol/mol		
<input type="checkbox"/> Molecule / CAS_No.						
<input type="checkbox"/> Main Application						
A	N	O	Description			
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
<input type="checkbox"/> Form						
<input type="checkbox"/> Country						
<input type="checkbox"/> Producer						
Apply Filter			Show Results		Clear Search	

**Note:** A new (as compared to the old COMAR) “unit” mol/mol is included for the field of gases; for convenience, this mol/mol ratio can also be sought for by the % “unit” (which is the same ratio but simply multiplied by 100).

## Show Results

If you click the button [Show Results](#) you will get a list of the CRMs found. The CRM Name is active (hyperlinked); clicking will provide you with all the information about the CRM.

Number of results: 124 Page: 2 of 31

5	CRM Name	Status	Year	Country	Validity
	<a href="#">BAM-E004</a>	available	2005	GERMANY	2007
<b>Producer</b> BAM/Division VI.11					
Rubber Sole Sheets for measuring the electrostatic charging of floor carpets by a walking test, Elastomere; Prüfsohlenplatte zur Bestimmung der elektrostatischen Aufladbarkeit von Teppichböden beim Begehen A rubber sole sheet is a elastomeric article which is used for the determination of the electrostatic charging of floor coverings generated by a person who walks on them. (3.0 ± 0.5) mm x 120 mm x 345 mm; Storage: Cool, dry, protected from light and kept in a protective cover (e.g. polyethylen bag) completely closed.					
<b>Fields of Application</b>		<b>Industries</b>			
		-----Measurement and Test Techniques, Instrumentation			
6	CRM Name	Status	Year	Country	Validity
	<a href="#">BAM-E005</a>	available	2005	GERMANY	2007
<b>Producer</b> BAM/Division VI.11					
Rubber Base Ring for the portable tester for measuring the surface roughness of streets (Efflux Meter according to MOORE)* Fussring fuer den Ausflussmesser nach MOORE zur Bestimmung der Rauheit von Strassenoberflaechen diameter 88 mm, 140g					
<b>Fields of Application</b>		<b>Industries</b>			
		-----Measurement and Test Techniques, Instrumentation			
7	CRM Name	Status	Year	Country	Validity
	<a href="#">BAM-E006</a>	available	2005	GERMANY	2007
<b>Producer</b> BAM/Division VI.11					
Rubber Slider for the British portable tester for measuring the surface grip property of streets (Skid Resistance Tester; SRT) according to ASTM E 303-93 10 mm x 25 mm x 76 mm, 35 g					
<b>Fields of Application</b>		<b>Industries</b>			
		-----Measurement and Test Techniques, Instrumentation			
8	CRM Name	Status	Year	Country	Validity
	<a href="#">BAM-E007</a>	available	2005	GERMANY	2007
<b>Producer</b> BAM/Division VI.11					
Rubber Slider for the friction measuring device for the determination of the PSV-value (Polished Stone Value) 10 mm x 25 mm x 32 mm, 15 g					
<b>Fields of Application</b>		<b>Industries</b>			
		-----Measurement and Test Techniques, Instrumentation			

Number of results: 124 Page: 2 of 31

Click the button [Print Preview](#) to get a (printable) overview of all CRMs.

Please use the print function of your browser.

<b>Product:</b>	<b>Status:</b>	<b>Year:</b>	<b>Country:</b>	<b>Validity:</b>
BAM-E010	available	2005	DE	2006
<b>Producer:</b> BAM Division VI.11				
<b>Description:</b> Elastomer DIN 53538 SRE-NBR 34 / ISO 13226 SRE-NBR 34/SX designated for automotive area (vulcanized with thiurame, high elongation at break); Elastomerplatte für den Kraftfahrzeugbereich (Thiuramvulkanisation, hohe Reißdehnung)				
<b>Fields of Application:</b>		<b>Industries</b> Measurement and Test Techniques, Instrumentation		
<b>Product:</b>	<b>Status:</b>	<b>Year:</b>	<b>Country:</b>	<b>Validity:</b>
BAM-E011	available	2005	DE	2006
<b>Producer:</b> BAM Division VI.11				
<b>Description:</b> Elastomer DIN 53538 SRE-HNBR 19 / ISO 13226 SRE-HNBR/1X designated for hydraulic and automotive area (vulcanized with peroxide); Elastomerplatte vor allem für den Bereich "Hydraulik" im Kraftfahrzeugbereich				
<b>Fields of Application:</b>		<b>Industries</b> Measurement and Test Techniques, Instrumentation		
<b>Product:</b>	<b>Status:</b>	<b>Year:</b>	<b>Country:</b>	<b>Validity:</b>
BAM-E017	available	2005	DE	2006
<b>Producer:</b> BAM Division VI.11				
<b>Description:</b> Elastomer ISO 13226 SRE-NBR/L designated for hydraulic and automotive area (vulcanized with thiurame, low content of acrylonitrile).The properties of the rubber sheet comply with the requirements given in ISO 13226.				
<b>Fields of Application:</b>		<b>Industries</b> Measurement and Test Techniques, Instrumentation		
<b>Product:</b>	<b>Status:</b>	<b>Year:</b>	<b>Country:</b>	<b>Validity:</b>
BAM-E018	available	2005	DE	2006
<b>Producer:</b> BAM Division VI.11				
<b>Description:</b> Elastomer ISO 13226 SRE-NBR/M designated for hydraulic and automotive area (vulcanized with thiurame, medium content of acrylonitrile). The properties of the rubber sheet comply with the requirements given in ISO 13226.				
<b>Fields of Application:</b>		<b>Industries</b> Measurement and Test Techniques, Instrumentation		

Click button "Back" to get to the page before.

