

Elsevier R&D Solutions

# Reaxys<sup>®</sup>

**Enabling Smarter Chemistry in  
Academic Institutions**

\*Based on a global, independent research study of the productivity generated by Reaxys in the academic market



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## Overview

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Section	Pages
<b>Section A</b> Productivity for academic researchers	2–13
<b>Section B</b> Education on information retrieval	14–16
<b>Section C</b> Productivity for students	17–19

## Meeting Challenges in Academic Research

The top six challenges faced by academic researchers with the percentage of respondents who rated that factor as extremely or very challenging.

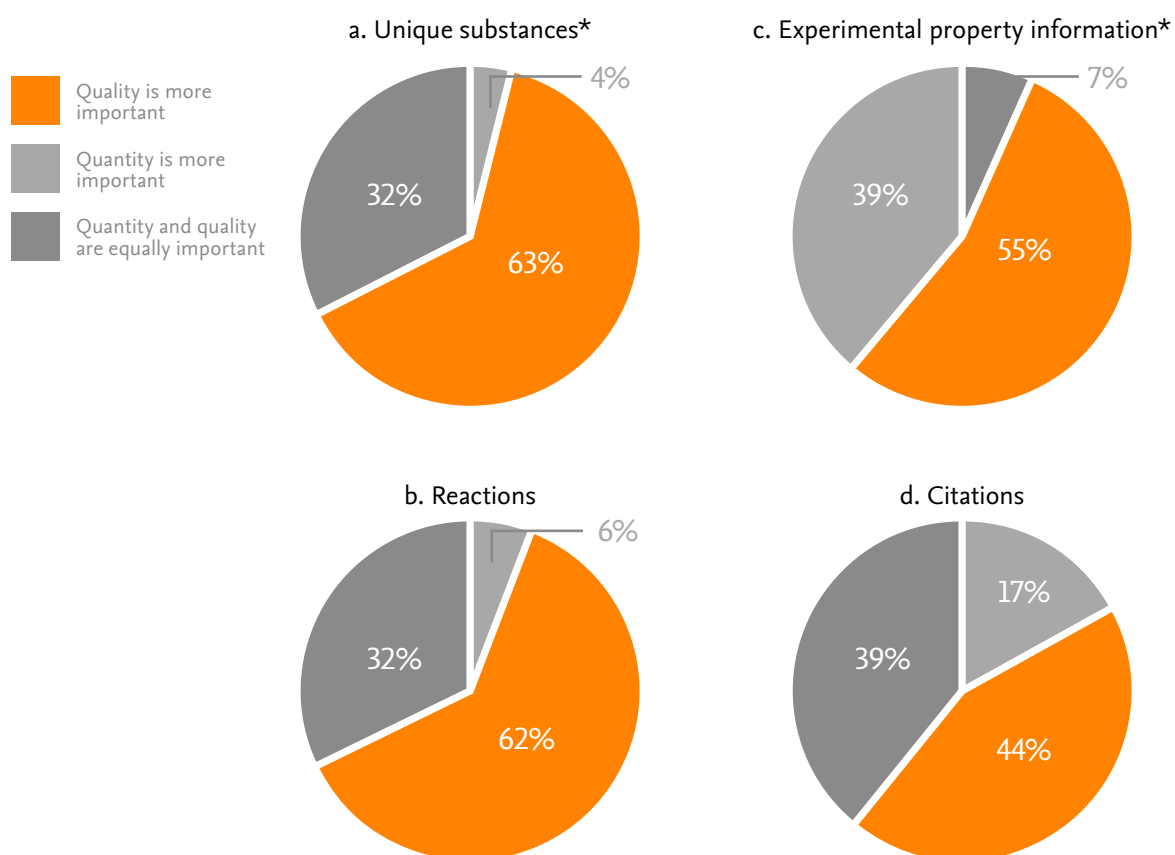
Challenge	Extremely / Very Challenging
Pressure to produce new, different, or higher-quality research results	83%
Time-consuming searches and filtering for relevant information	74%
Finding credible and reliable resources to support creative research	72%
Pressure to publish research results quickly	69%
Finding experimentally measured chemistry data rather than calculated data	69%
Pressure to move more quickly and efficiently from basic ideas or proposals to the desired outcome	68%

The top six selection criteria for online chemistry research informatics tools with the percentage of respondents who rated that factor as extremely or very important.

1	Contains real compounds	88%
2	Allows comprehensive literature searches	87%
3	Contains extensive reaction information	85%
4	Returns relevant and credible results	84%
5	Provides substance data and research outcomes	83%
6	Returns results based on extensive experimental data	82%

# Quality of Information Is Far More Important Than Quantity

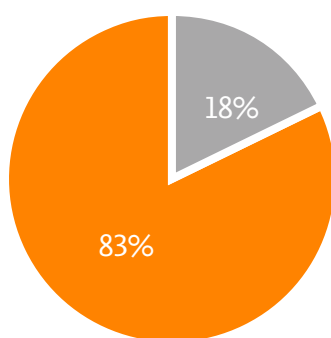
For each category, respondents were asked to rate quantity or quality in terms of relative importance.



\*Sum does not equal 100% due to rounding to whole numbers

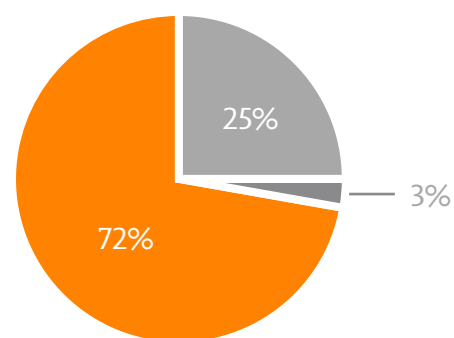
## Usefulness of Reaxys Features

For each category, respondents were asked to rate quantity or quality in terms of relative importance.



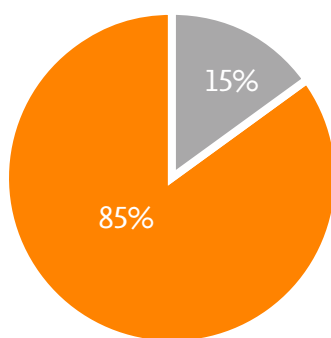
### a. Ask Reaxys\*

A single-click search option where Reaxys interprets the query and takes the searcher immediately to the field in Reaxys with the specific information.



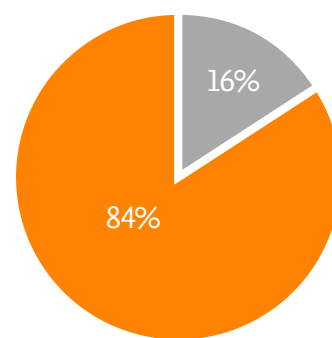
### b. ReaxysTree

Browse and search hierarchies of terms—particularly those relating to chemical transformations and properties of substances.



### c. Formula Builder

A simple way to build and then search for formulas and partial formulas, this feature is especially useful for inorganic and organometallic searches.



### d. Search Querylets

This is a simple way to search for general or specific information in the >500 fields in Reaxys, and to combine this search with other searches.

### Frequency of Use of Reaxys

Respondents were asked how often Reaxys helped to move their work forward.

**1.8 TIMES**  
each working day

**9 TIMES**  
each week

\*Sum does not equal 100% due to rounding to whole numbers

## Reaxys Rating in the Top Six Selection Criteria

Respondents were asked to rate Reaxys in terms of its performance in the areas that are crucial selection criteria for chemistry research informatics products. In the top six criteria, high percentages of respondents rated Reaxys as extremely or very strong.

### 1. CONTAINS REAL COMPOUNDS



### 2. ALLOWS COMPREHENSIVE LITERATURE SEARCHES



### 3. CONTAINS EXTENSIVE REACTION INFORMATION



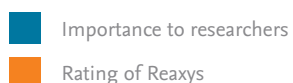
### 4. RETURNS RELEVANT AND CREDIBLE RESULTS



### 5. PROVIDES SUBSTANCE DATA AND RESEARCH OUTCOMES



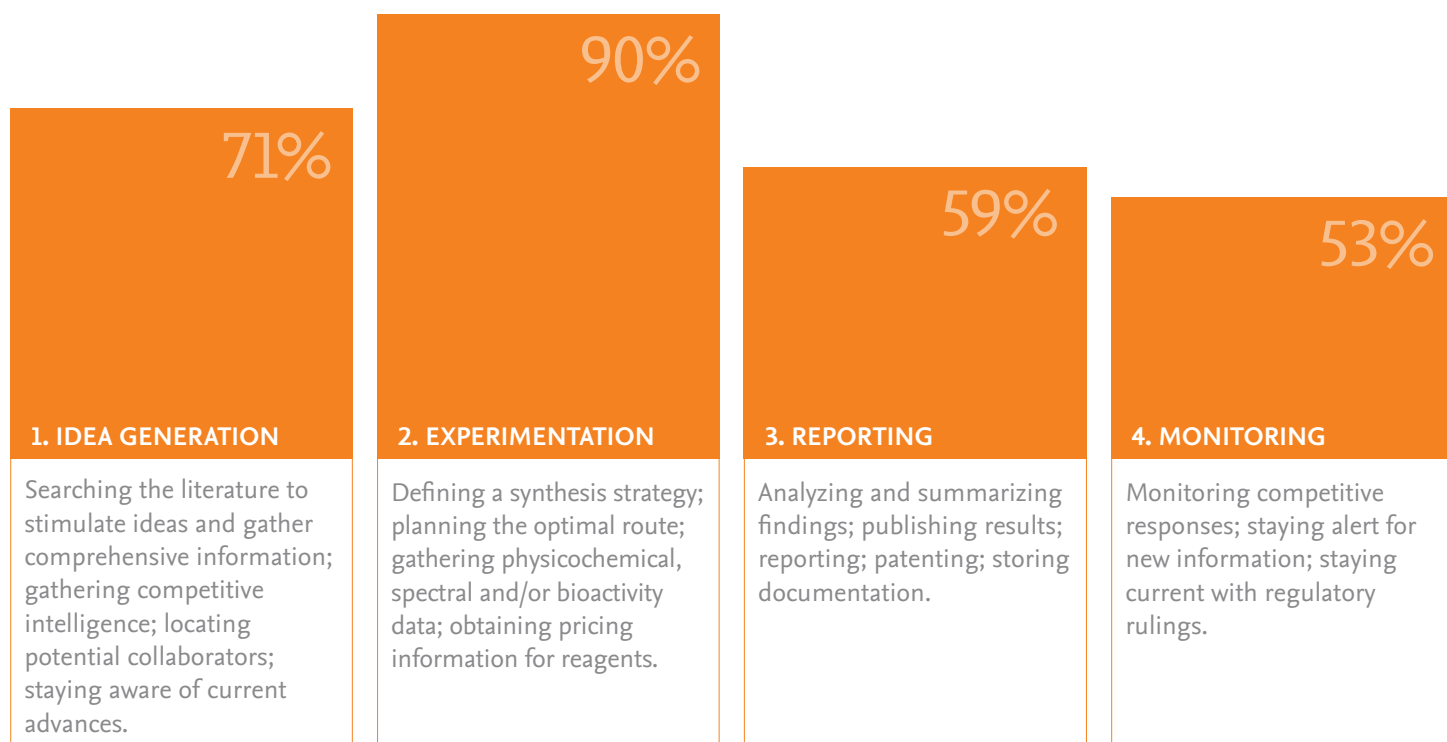
### 6. RETURNS RESULTS BASED ON EXTENSIVE EXPERIMENTAL DATA



## Reaxys and the Research Process

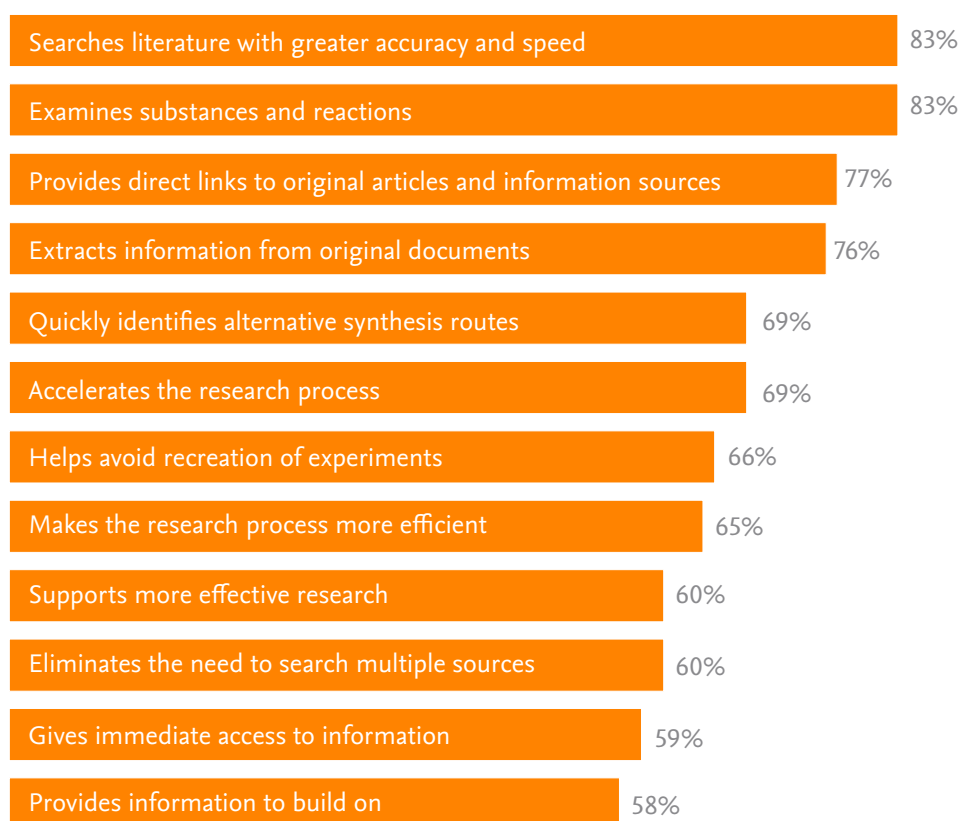
Academic researchers indicate that Reaxys is a powerful tool throughout the research process, but especially during idea generation and experimentation. Ratings indicate the percentage of respondents who deemed Reaxys extremely or very effective at a given stage.

### STAGES IN THE CHEMISTRY RESEARCH PROCESS



## The Contribution of Reaxys to Productivity and Efficiency

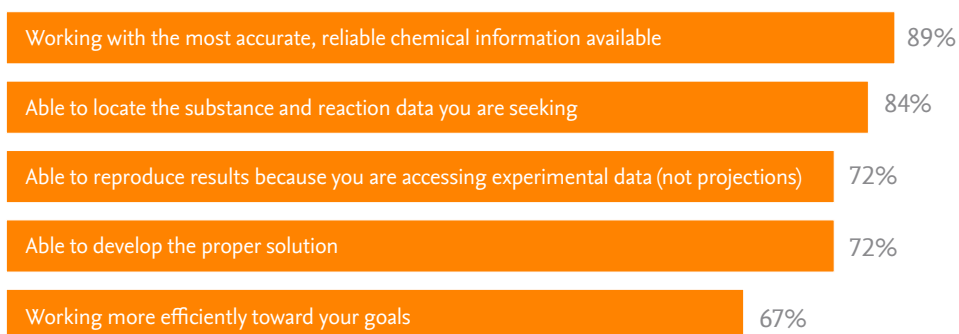
Respondents identified an average of 10 ways that Reaxys improves their productivity and efficiency. The top 12 are shown below with the percentage of respondents that proposed them.





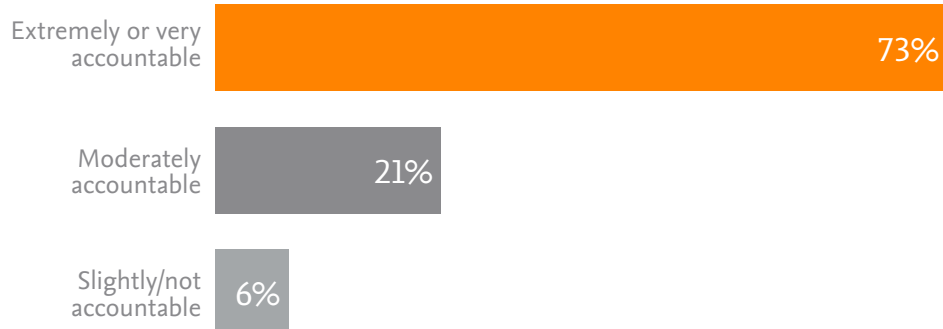
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When using Reaxys, academic researchers are more confident about developing the proper solutions for their research objectives. Respondents selected responses as completion of the statement “Using Reaxys means that you are:”. Multiple responses were accepted. The top 5 responses are shown.



## Reaxys — an Accountable Investment

94% of academic researchers call Reaxys an accountable investment — it enhances productivity and advances the research process in excess of the cost.



### Academic Researchers' Comments

**"Reaxys decreases unnecessary costs associated with collaboration and the exchange of information, etc."**

– Postdoctoral scientist

**"Reaxys allows us to find proper reaction conditions quickly for substrate synthesis."**

– Director/head/professor

**"Reaxys can help me more quickly discover information that generates improved ideas."**

– Director/head/professor

**"The ability to efficiently search for reactions through a structural database is invaluable."**

– Graduate student proceeding to PhD or MSc

## Significant Time Savings

Respondents were asked to compare their research times prior to having Reaxys and their research times with Reaxys.

	Respondents stating that Reaxys saves time	Amount of time saved (average)
Locating relevant answers	99%	45%
Obtaining information that generates improved ideas	99%	43%
Developing better synthesis routes	100%	47%
Sharing data and collaborating	89%	35%

## Reaxys — The Most Effective Route to Smarter Research

### What respondents say about Reaxys and SciFinder

**“Sometimes SciFinder cannot give all of the expected reactions, but Reaxys does.”**

– Postdoctoral scientist

**“SciFinder’s search results are presented in a much less clear manner, and it seems to more frequently provide irrelevant results than Reaxys.”**

– Postdoctoral scientist

**“Reaxys is easier to use and has a better interface, so there is a smaller learning curve.”**

– Postdoctoral scientist

**“Reaxys is much more user friendly, which means we are quicker at finding relevant information.”**

– Postdoctoral scientist

Respondents that were familiar with both Reaxys and SciFinder rated them in terms of superiority in 10 categories.

Section criteria		Reaxys is superior*	SciFinder is superior*	Rated equal
1	Contains real compounds**	56%	18%	27%
2	Allows comprehensive literature searches	31%	49%	20%
3	Contains extensive reaction information	73%	22%	5%
4	Returns relevant and credible results	48%	15%	37%
5	Provides substance data and research outcomes	68%	21%	11%
6	Returns results based on extensive experimental data	62%	17%	21%
Other criteria				
•	Is easy to use	63%	12%	25%
•	Reflects actual working style of chemists	56%	8%	36%
•	Supports decision-making and planning	69%	8%	23%
•	Advances utility and productivity**	52%	10%	39%

\*For each criterion there was a “don’t know” option; those respondents were not included in the results.

Therefore, the responses reflect the opinions of respondents with specific knowledge of the two products.

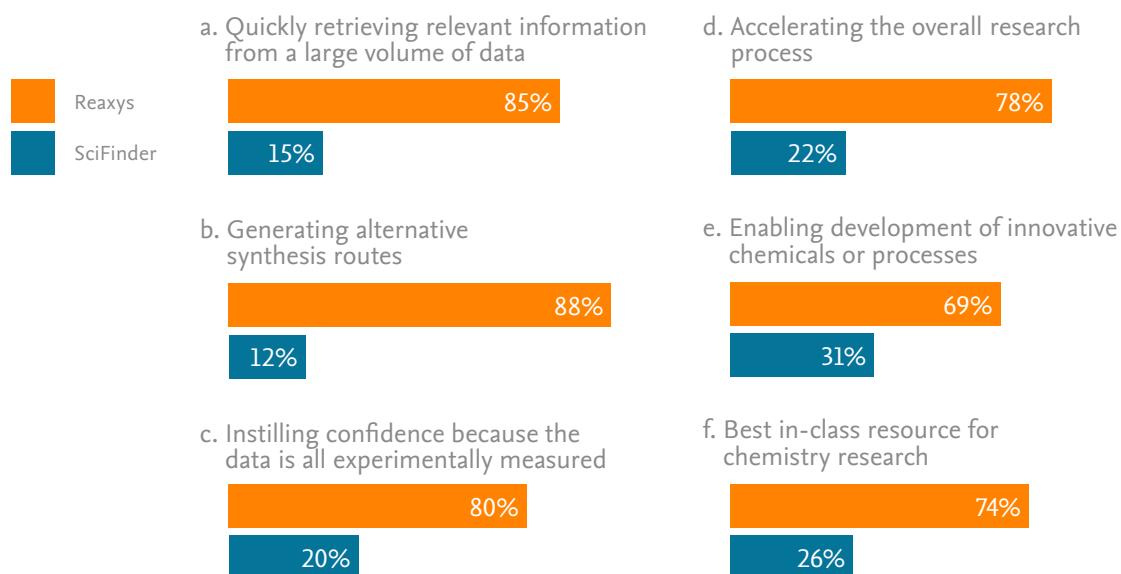
\*\*Sum does not equal 100% due to rounding to whole numbers.

## Reaxys — Greater Productivity in Research

Researchers familiar with both Reaxys and SciFinder rated them in terms of which supported greater productivity at each stage of research.

Stages of the research process		Reaxys supports greater productivity	SciFinder supports greater productivity	They support productivity equally
1	Idea generation	50%	22%	28%
2	Experimentation	78%	13%	9%
3	Reporting	40%	19%	41%
4	Monitoring	35%	33%	32%
5	Summary across all stages	54%	13%	32%

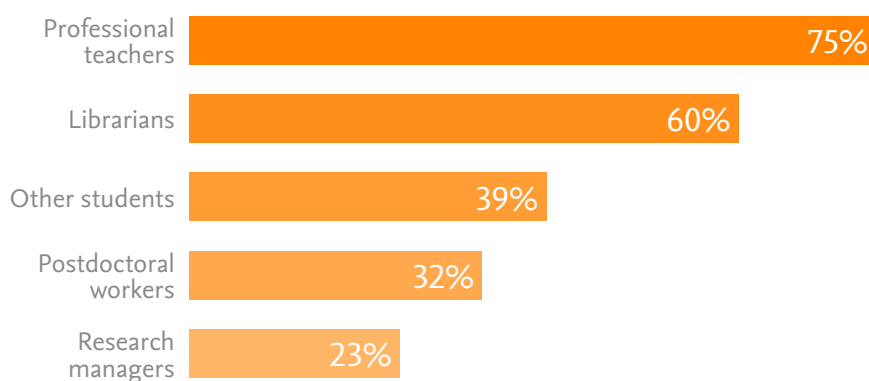
Academic researchers rate Reaxys as giving a far greater return on investment



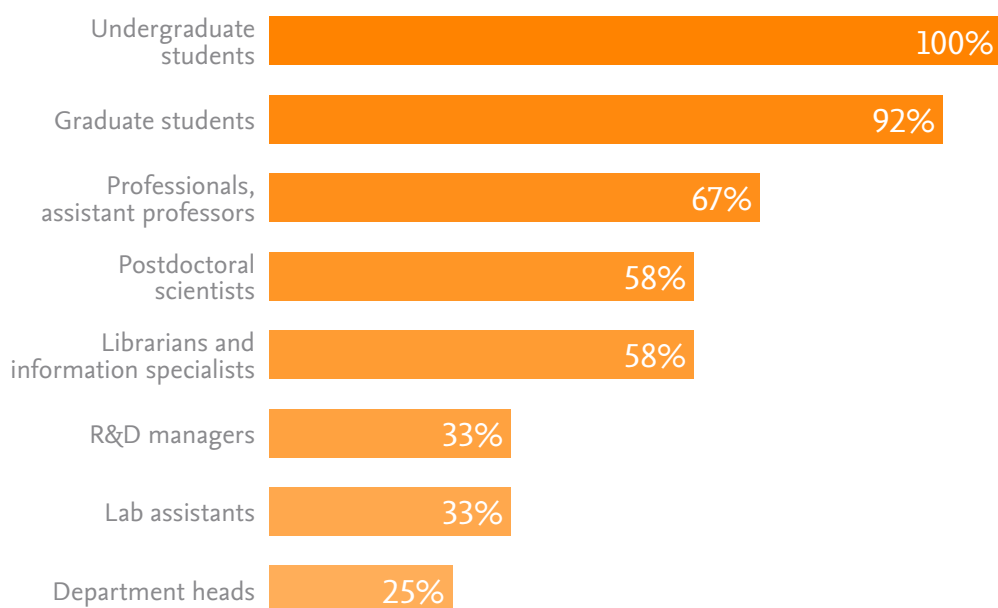
## Education About Information Retrieval

93% of universities teach informational retrieval.

### PERCENTAGES OF EACH SURVEYED CATEGORY OF RESPONDENTS WHO TEACH INFORMATION RETRIEVAL



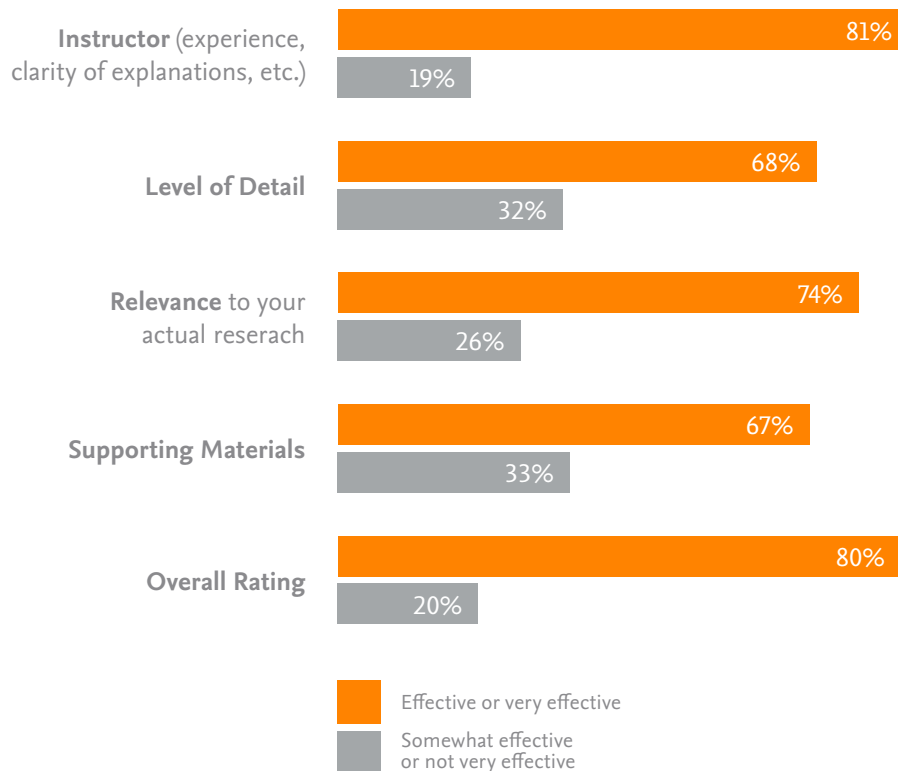
### PERCENTAGE OF EACH SURVEYED CATEGORY WHO LEARN ABOUT INFORMATION RETRIEVAL FROM LIBRARIANS



## Rating of Education on Information Retrieval

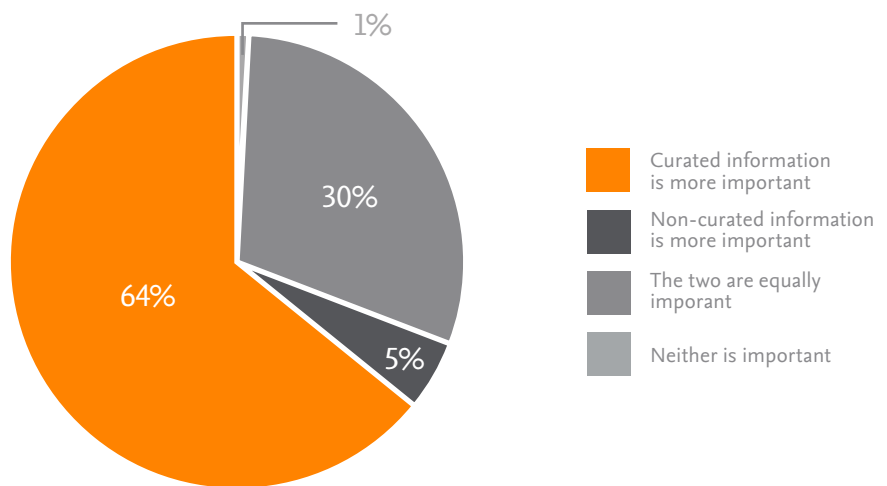
Most students believe they received a proper education on information retrieval. Ratings were based on how effective respondents found aspects of the instruction.

Topics learned about Reaxys during formal instruction	
Structure searching	83%
Reaction searching	79%
Property searching	46%
Citation searching	43%
Search and post-processing functionalities	34%
Newest features	23%

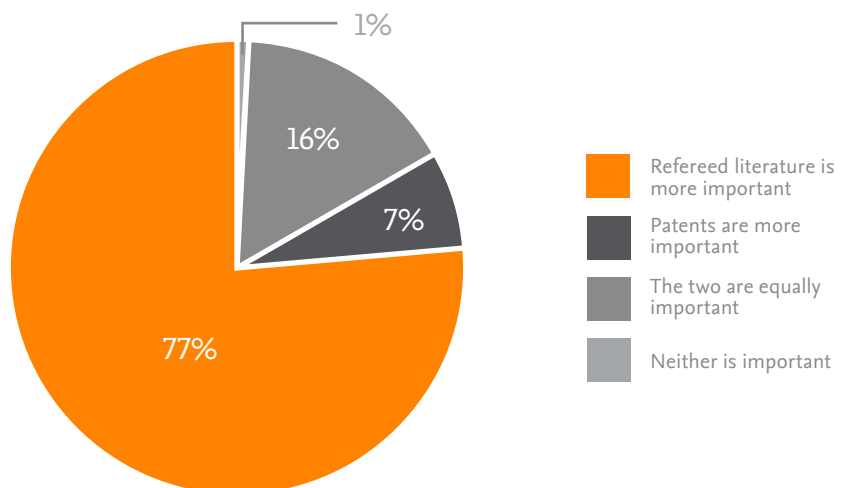


## Value Placed on Types of Information by Respondents

Respondents qualified the relative importance of curated and non-curated data.



Respondents qualified the relative importance of refereed literature versus patent information.

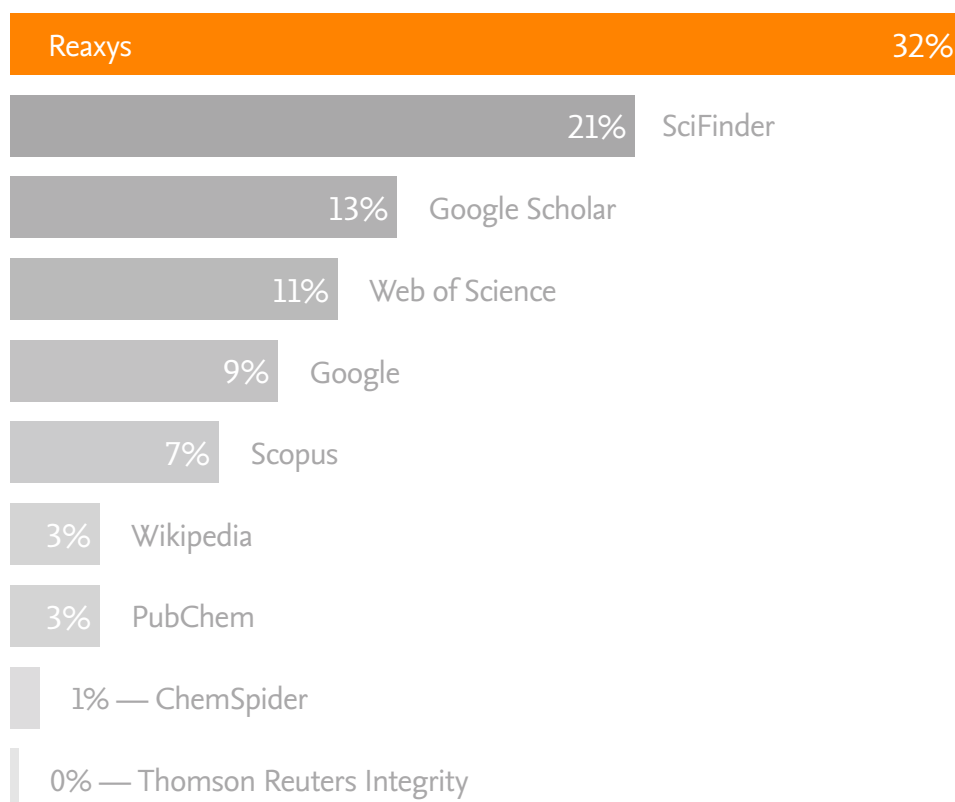




## Ranking of Online Scientific Resources

Post-doctoral scientists and students rank Reaxys as the most valuable online resource for scientific research. This is a summary ranking of **overall value** (most useful, easiest to use, etc.).

THE CHART SHOWS THE PERCENTAGE OF RESPONDENTS WHO RANKED A GIVEN RESOURCE FIRST



## Graduate Students' Comments On Reaxys

"**Reaxys** has an advanced search section where you can draw your reactants and products."

"**Reaxys** has better customized algorithms and allows more intuitive searching than other resources."

"**Reaxys** results are much more specific to what you are searching for than those from other resources."

"I ranked **Reaxys** as the most valuable online scientific resource because I prefer the interface to that of SciFinder and I have observed that the search engine does a superior job of finding the relevant data."

"I ranked **Reaxys** first for the way it can plan a synthesis route!"

"**Reaxys** contains almost every reaction I need."

"**Reaxys** is the most valuable online scientific resource because the results are given in the most understandable and useful way."

"For an organic chemist, the ability to efficiently search for reactions through the **Reaxys** structural database is invaluable."

"I use **Reaxys** many times a day. The new interface is very nice and the 'structure search' function is essential to my research."

"I find **Reaxys** brilliant. I just wish I had known about it at the start of my PhD."

"**Reaxys** is easy to use and reliable."

# Return on Investment Study

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## SURVEY METHODOLOGY

**Research organization:** Martin Akel & Associates, Nipomo, California, USA.

**Date conducted:** October, 2014.

**Universe studied:** 4,900 academic and government (A&G) market end users of Reaxys for whom email addresses were available. Additional A&G professionals who use ScienceDirect were added to the list, and qualified as to their use of Reaxys.

**Market segments:** Colleges, universities, medical schools, government agencies, non-profit research centers/institutes, etc.

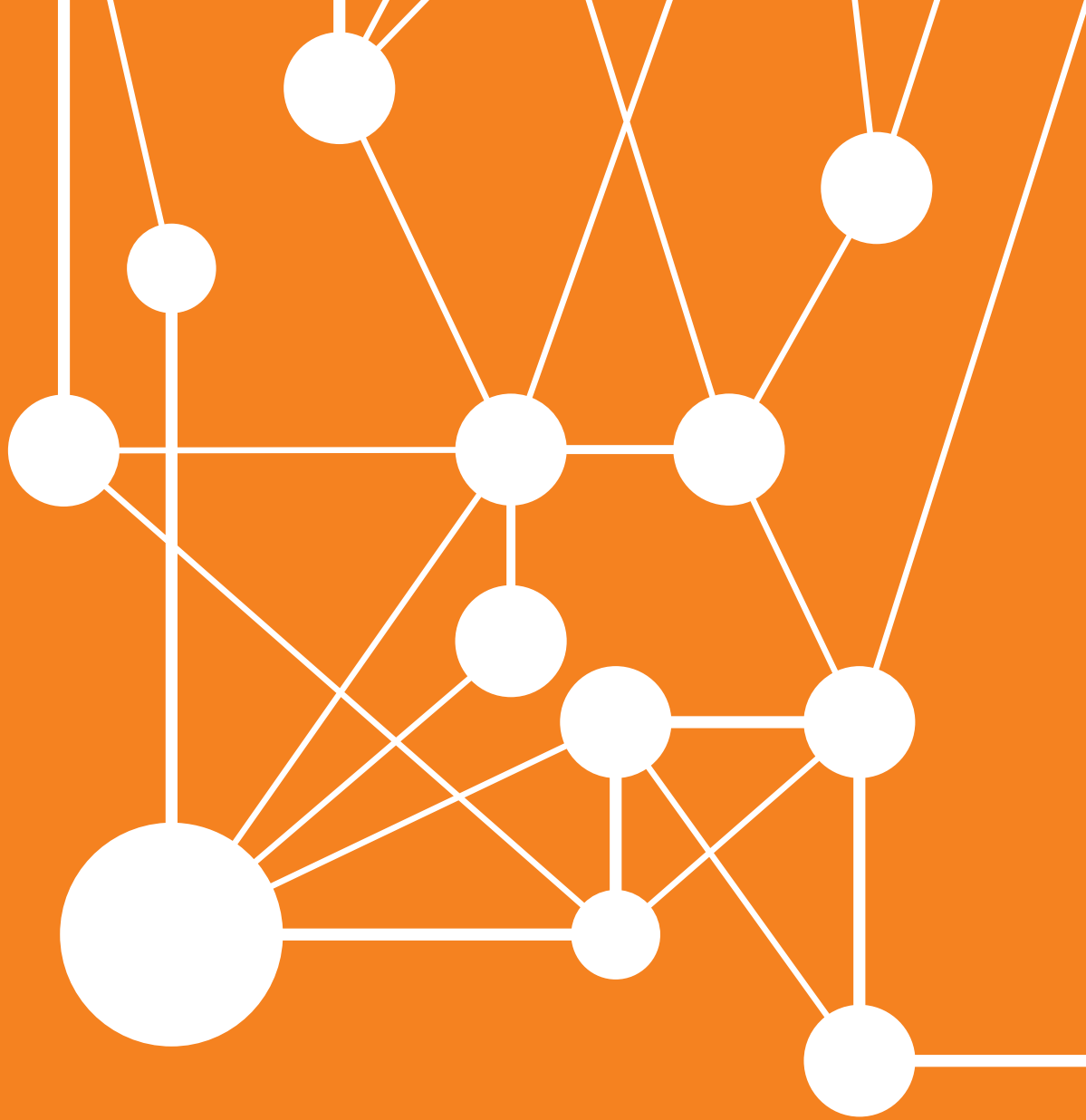
**Types of respondent:** Department heads, lab assistants, technicians, librarians, graduate students, scientists, professors, deans, etc.

**Medium used:** Email invitations and an online questionnaire.

**Identification:** The survey was sent out under the Reaxys name.

**Incentives:** Contests for gift cards, a gourmet dinner and event tickets.

**Response rate:** 637 usable returns = 13.0% response; overall margin of error (95% confidence level) = +/-4.0%



## LEARN MORE

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