KNOVEL

励德爱思唯尔科技有限公司

罗莹

ELSEVIER

培训目录

- Knovel数据库简介
  - Knovel三要素
  - Knovel功能特色
- Knovel数据库界面认知
- Knovel检索介绍
  - Basic search
  - Graphs
  - Data search
  - Tables
  - Equations
  - Unit Converter
  - Periodic Table

数据库简介

- Knovel是一种基于网络的专业在线工程平台，将技术信息集成于分析与搜索工具，致力于推动创新，为工程师提供值得信赖的答案。
- 用户将Knovel视作可靠的一站式技术参考，包括资料属性数据。他们向Knovel而不是某一本电子书寻求答案。在Knovel的海量工程资源中快速寻求答案，同时与原本静态的数据互动，这种特点使Knovel远远超越了整套电子书的价值。

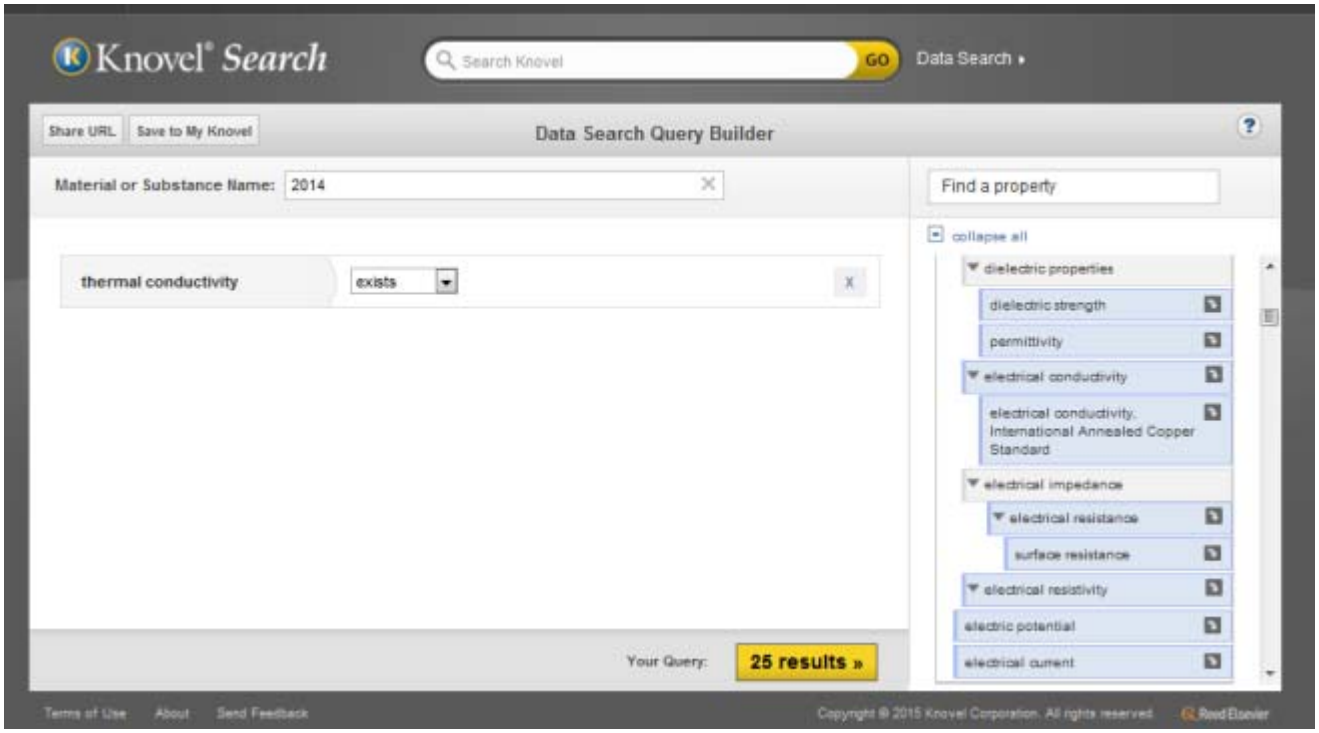
AASHTO美国州公路和运输观员协会	DECHEMA德国化工与生物技术学会	National Ground Water Association美国地下水协会
AIA美国航天协会	FASEB美国实验生物学联会	PMI国际项目管理学会
AIChE美国化学工程学会	IFIS国际食品信息服务	RSC英国皇家化学学会
AMACOM美国管理协会	**IABSE国际桥梁与结构工程协会**	InternationalSAE国际自动机工程学会
AOCS美国油脂化学学会	IChemE化学工程师学会	SIAM美国工业与应用数学学会
ASHRAE美国冷冻空调协会	**IET国际工程技术学会**	SME矿冶与探测学会
ASME美国机械工程协会	ISA国际自动化协会	SNAME美国造船暨轮机工程学会
ASM International美国材料信息学会	IOP英国物理学会	SPE国际塑料工程师学会
AEE美国能源工程协会	TMS美国矿冶与材料学会	SVC美国真空镀膜协会
ASTM International美国材料试验协会	NACE International美国防蚀工程学会	SPIE国际光学工程学会
AWWA美国水行业协会	NCRP 美国辐射防护与度量委员会	**TRB 美国运输研究委员会**
		WEF水环境协会

Knovel三要素-为了更快更有效的工作流程：

- **来自相关资源的可靠内容**
  - 用户在30多个学科领域寻求答案。Knovel与100多家权威出版商和学会合作，包括美国航空航天学会（AIAA）、美国化学工程师协会（AIChE）、美国采暖、制冷与空调工程师学会（ASHRAE）和美国土木工程师协会（ASCE）。Knovel致力于持续扩展所覆盖的内容与学科领域。
- **集成于工程工作流程的数据分析工具**
- **专为工程师优化的搜索服务**

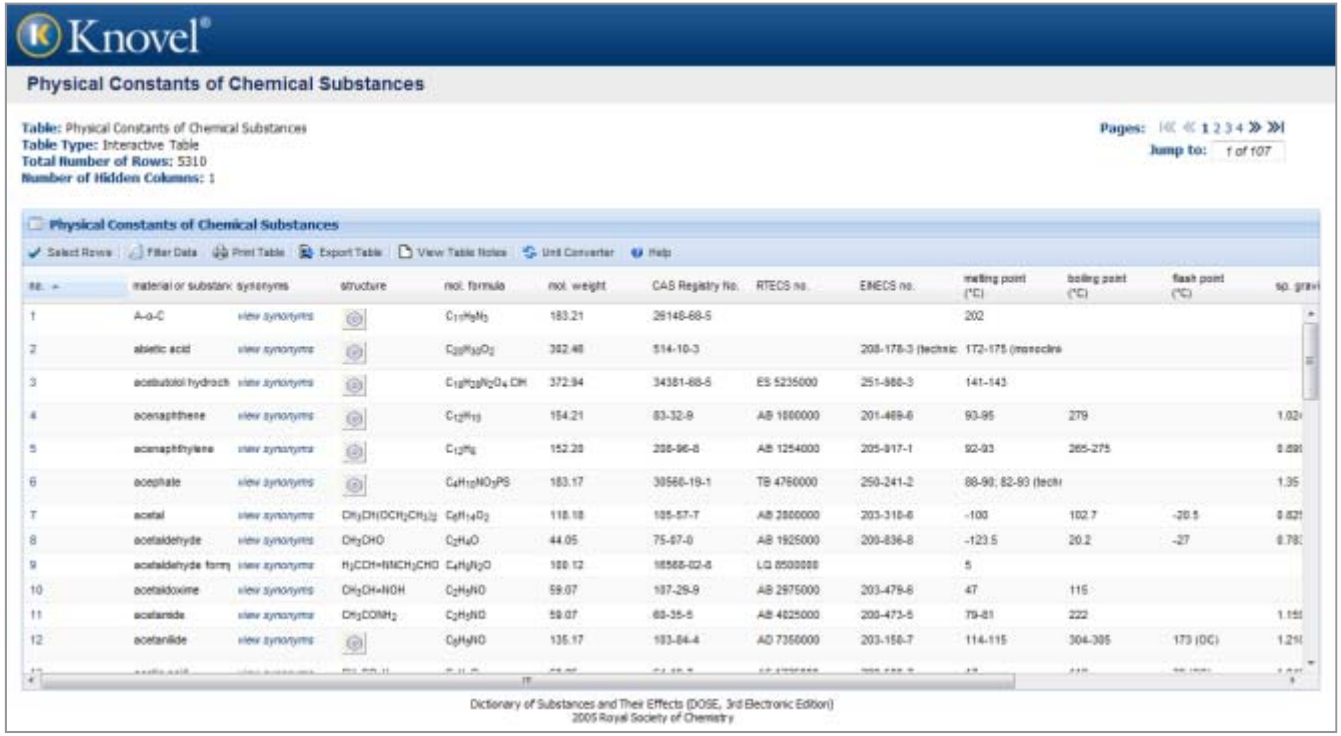
功能特色-数值型检索

- **Knovel数值型检索**：根据工程师的思维方式以及搜索需求而设计。用户可以搜索数字类型的关键词或数据。Knovel还能够以表格、图表和方程式的形式返回搜索结果。



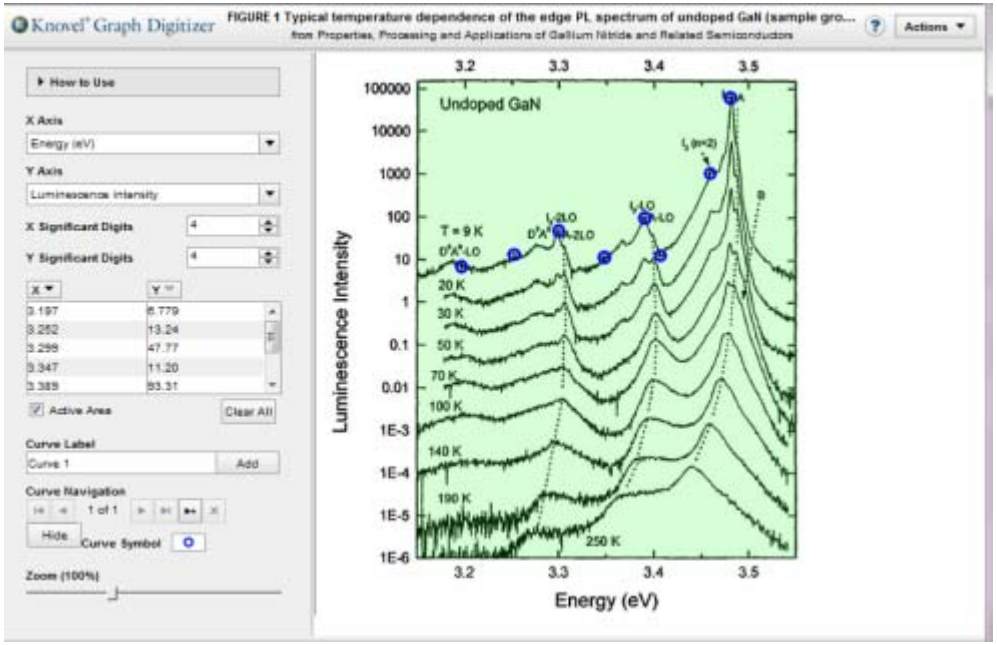
功能特色-交互式表格

- **Knovel交互式表格**:让您可以随意变动行或列的排列、可隐藏选择的行列数据让相关数据有最佳的呈现、或将数据汇出。而Knovel更期望其使用者可将汇出的表格作为引用证明的数据来源。



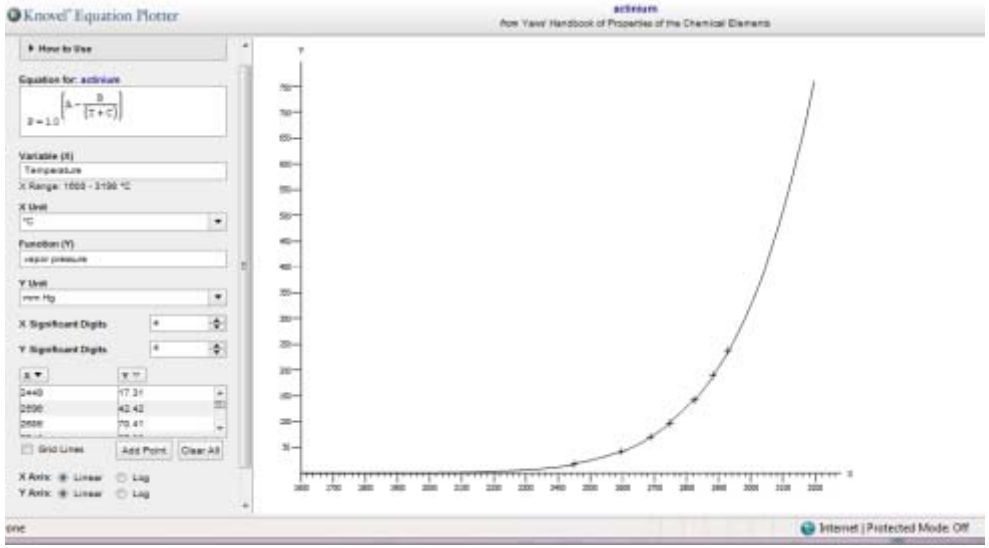
功能特色-交互式图表

- Knovel交互式图表：可让您测定精确的数据坐标而不用依赖易出错的推断技术。所有相关数据皆可输出以协助您决定并且对于后来的同行评审来说是一个很好的引用资源。

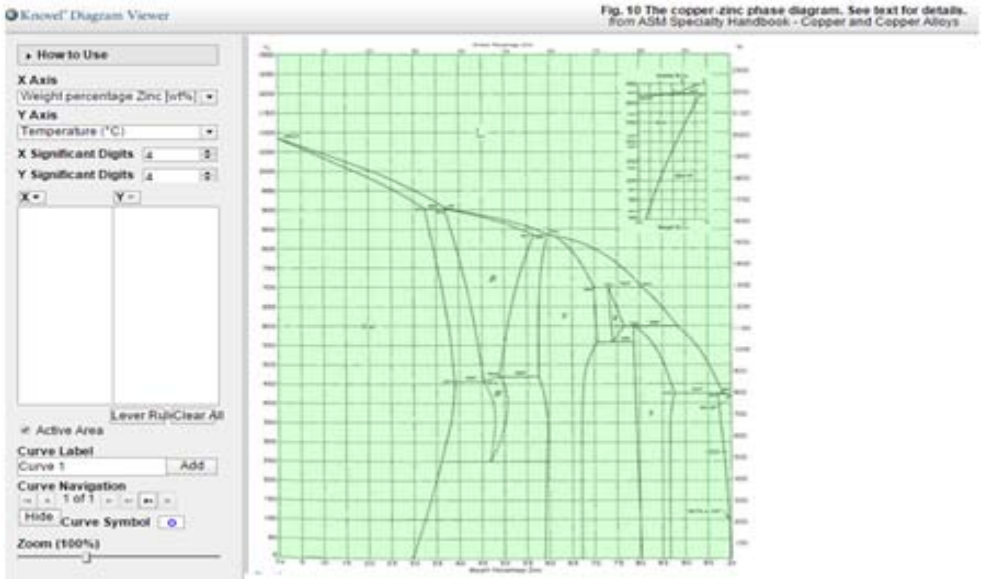


曲线数字转化器——可以将静态的曲线数据汇出，也可以将数据在图上标绘出来、汇出、打印。

功能特色-交互式图表



方程式标绘器 —— 根据方程式进行绘制曲线图，您可以在图上进行描点，标注及改变坐标单位等操作。

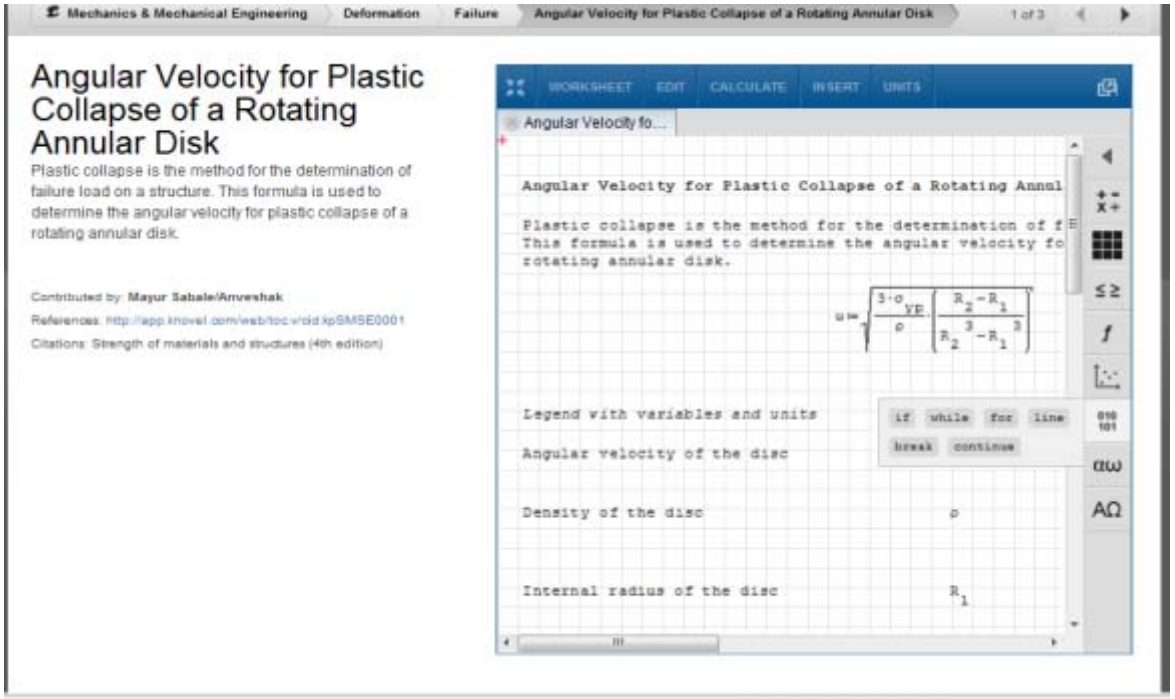


相图阅读器——可确定两相系统的边界组分，内置杠杆原理计算器。

功能特色-工具箱

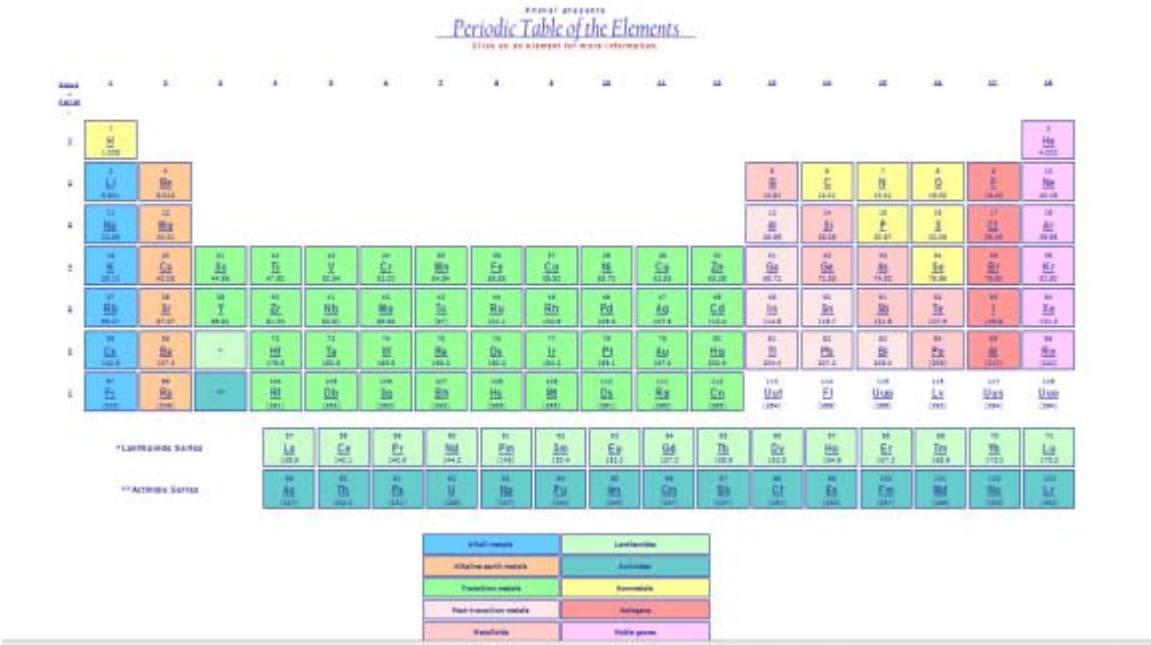
Knovel工具箱：

互动式方程式：包括超过1000个实用方程式，使用内置的方程求解计算，并导出计算报告和分享知识；并结合文字，数学，图像和情节以便捷地一键式的工程公式功能，访问包含数学函数，工程单位，编程结构，以及数学符号工具箱等。



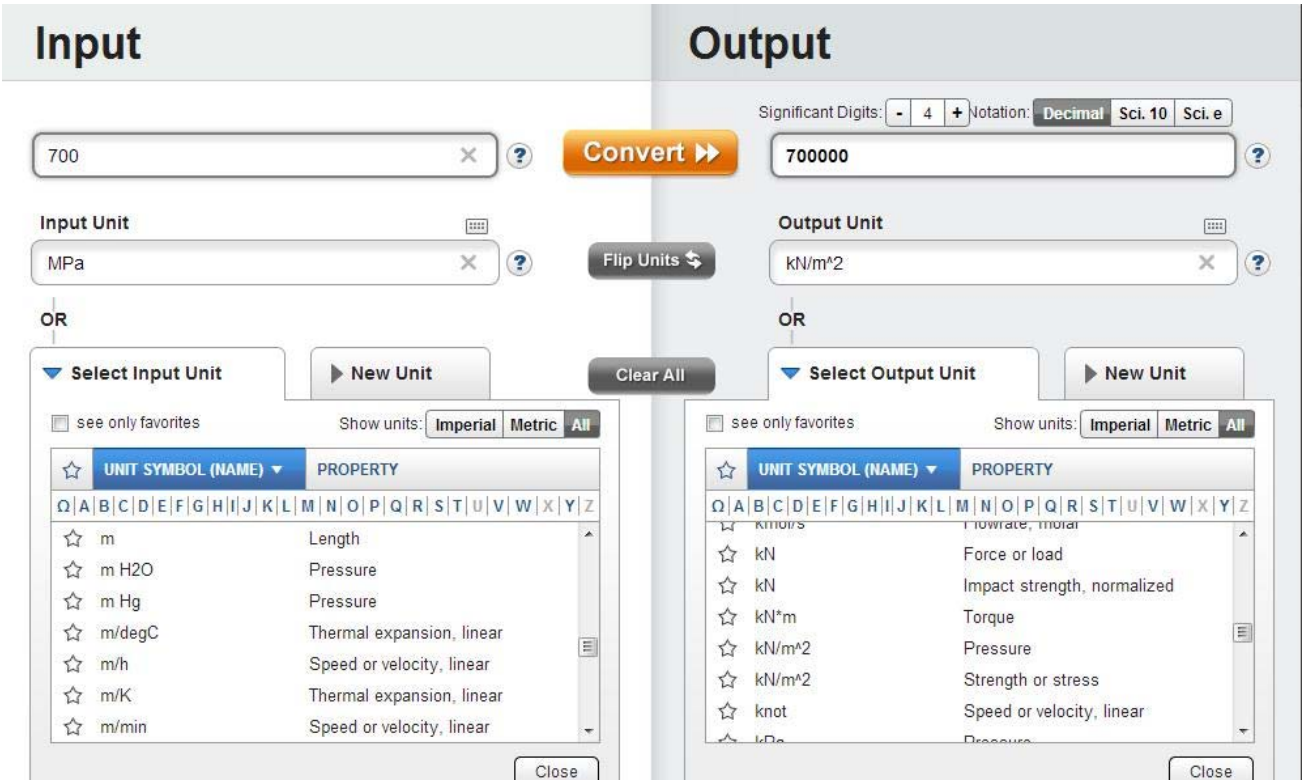
功能特色-工具箱

元素周期表：提供了各个化学元素的信息，包括：原子质量，电子结构，化合价，同位素组成和其它常用理化性能参数。



功能特色-工具箱

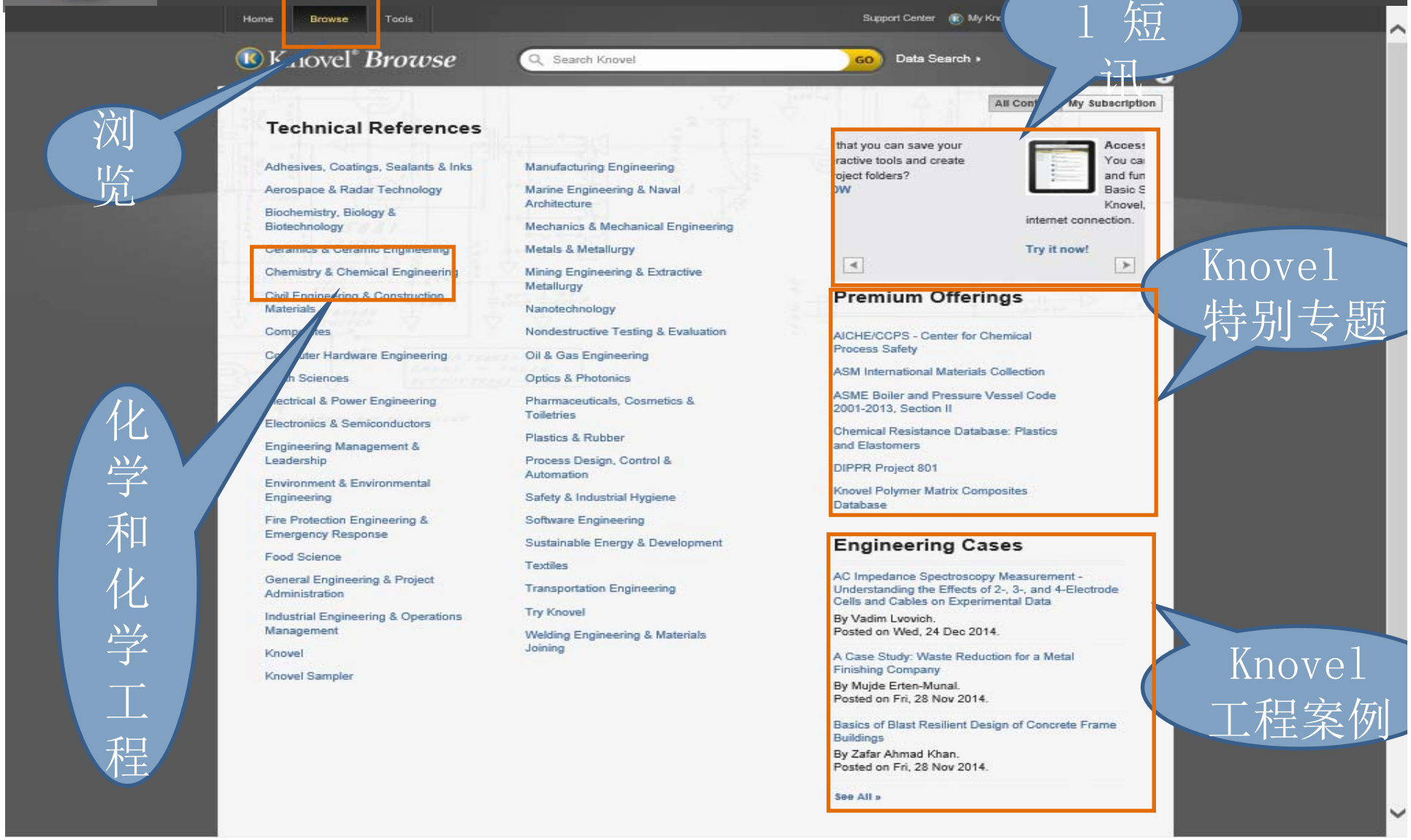
工程单位转换器：**Knovel单位转换器有两种模式可供选择。非订户获得免费使用的和共享的工具能够访问约1,000内置单位为超过80%的工程运算使用。Knovel用户拥有额外的定制功能。它们可以保存和访问用户创建的单位，标记和排序自定义的单位，并创建自己的默认设置。**



Knovel数据库界面认知

Knovel认知- Basic search-Tables Graphs-Data search-Equations-Unit Converter-PeriodicTable

Knovel 数据库资源 学科主题分类

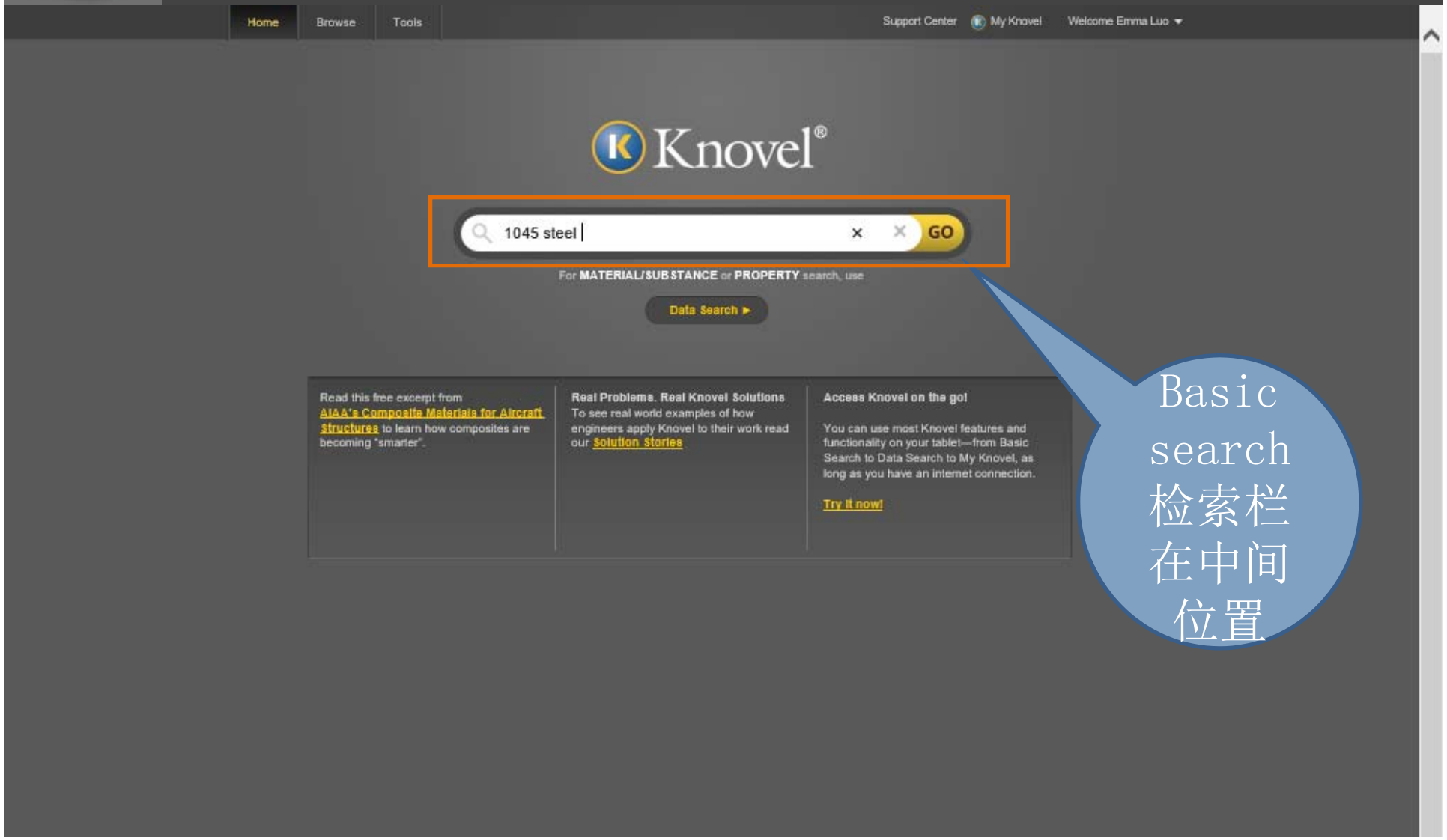


Knovel认知- Basic search-Tables Graphs-Data search-Equations-Unit Converter-PeriodicTable

novel 数据库资源 未订购学科为灰色

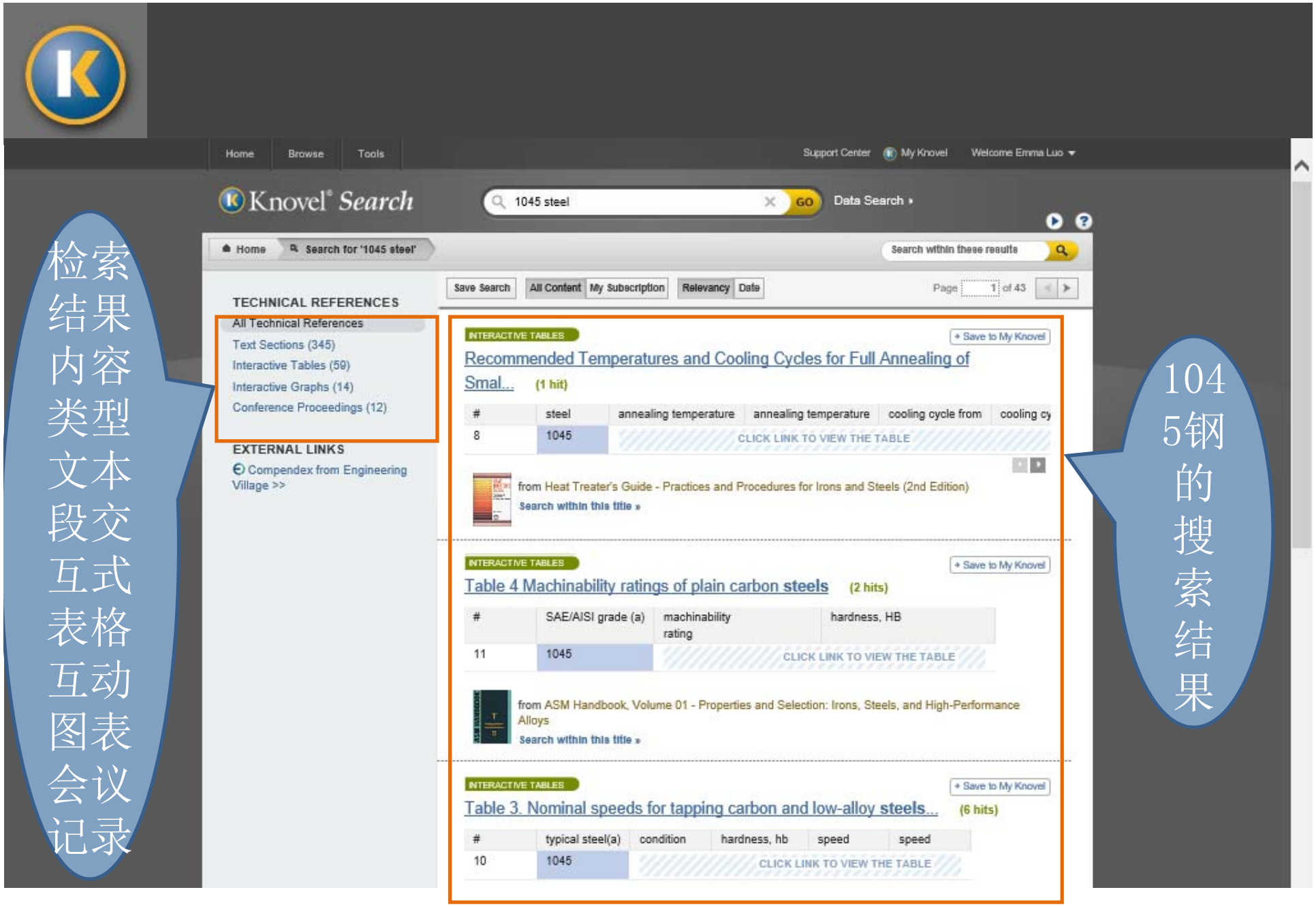
- 问题：1045钢的硬度函数的中碳钢应变寿命行为。

Knovel数据库Basic search



Knovel认知- Basic search-Tables Graphs-Data search-Equations-Unit Converter-PeriodicTable

检索结果内容类型文本段交互式表格互动图表会议记录



1045钢的搜索结果

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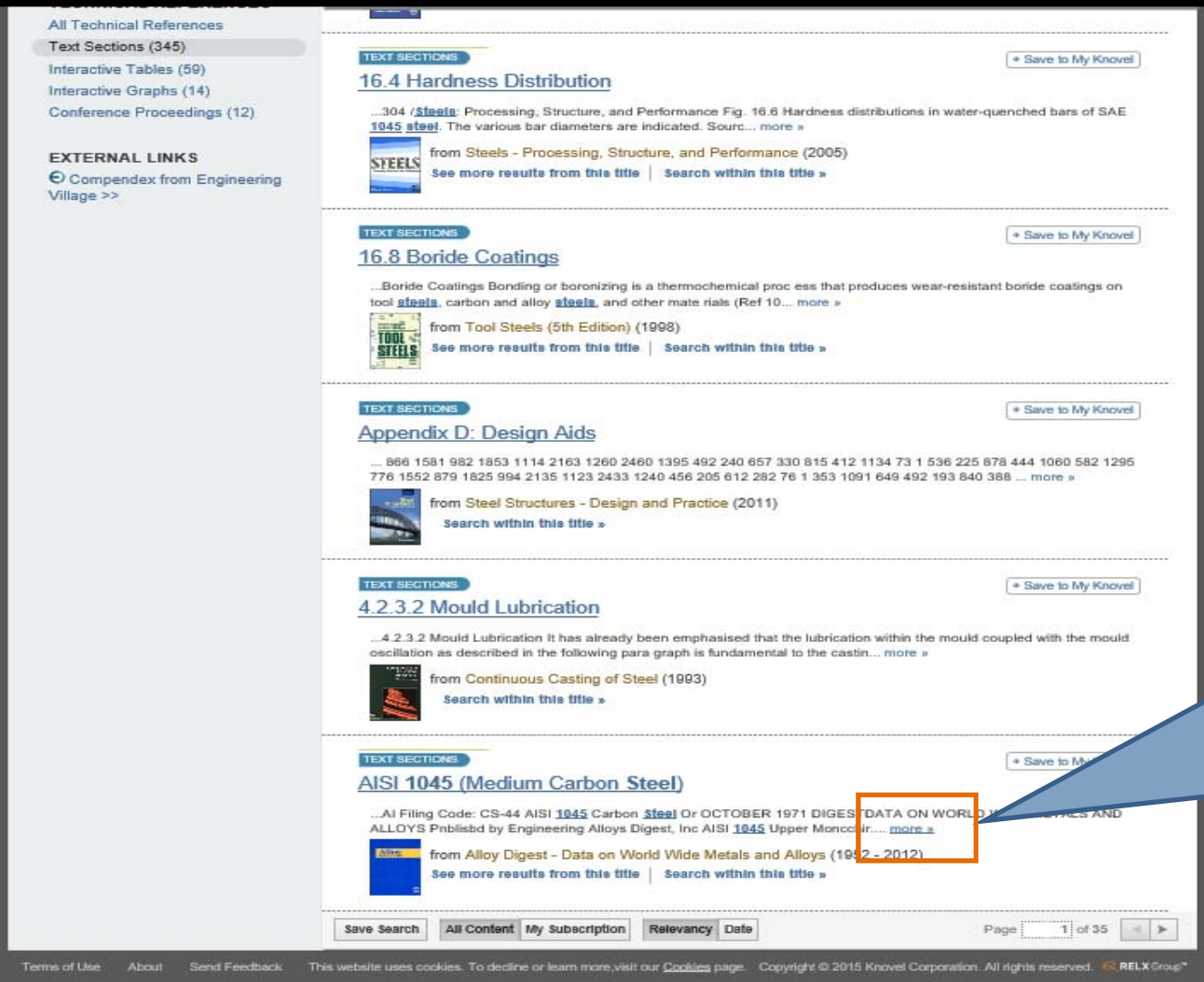

每一个检索结果都有摘要信息

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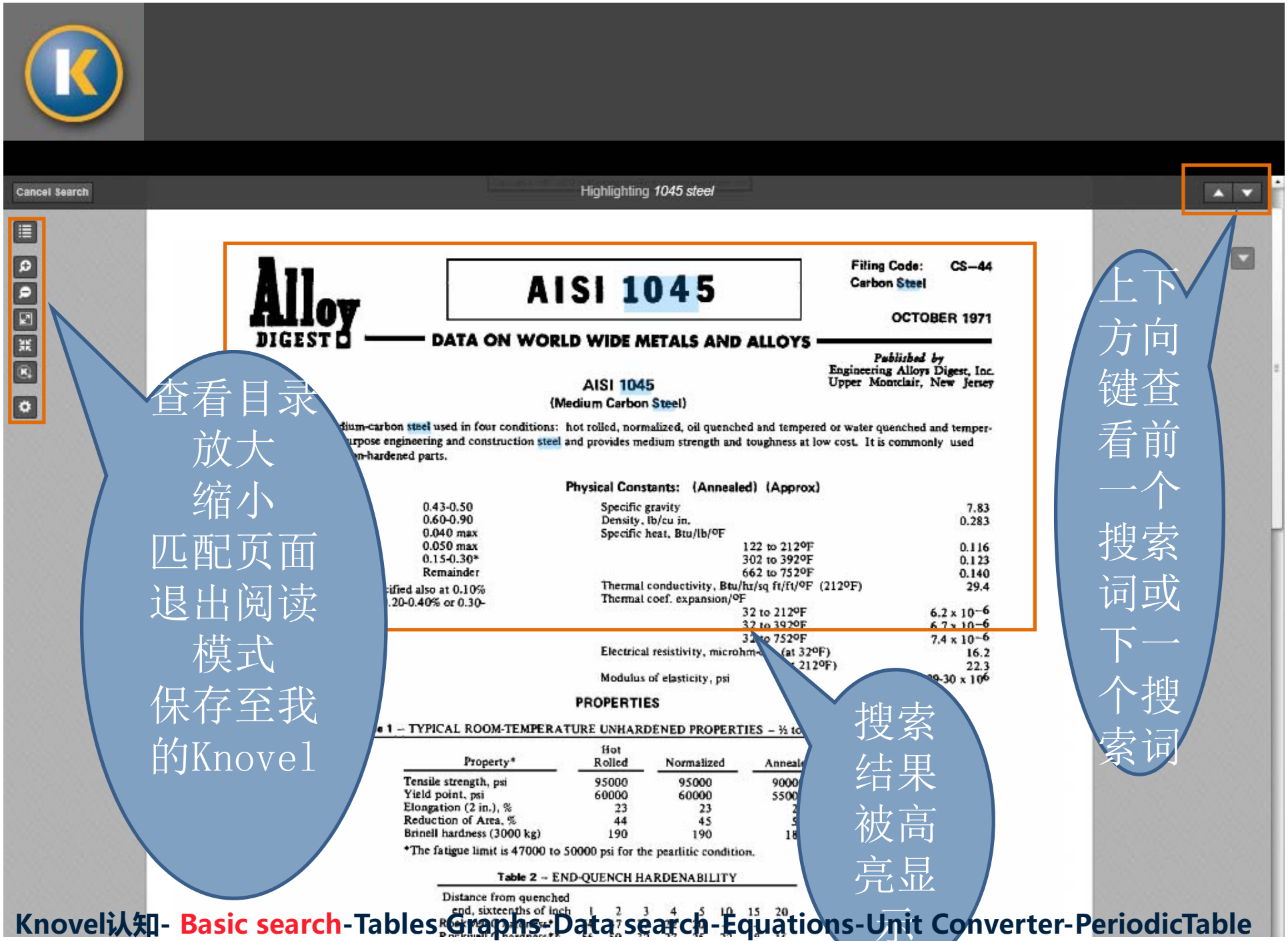
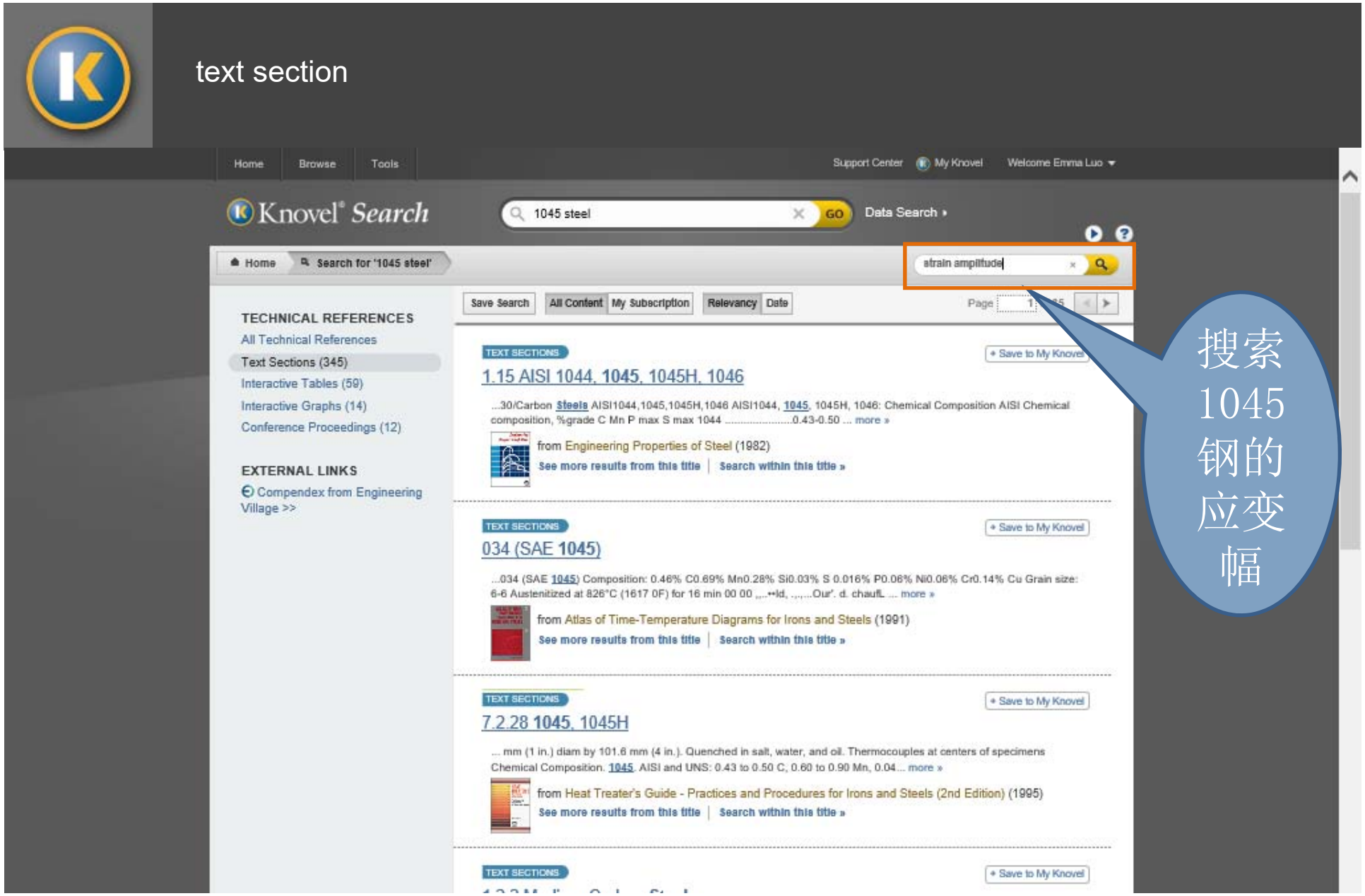
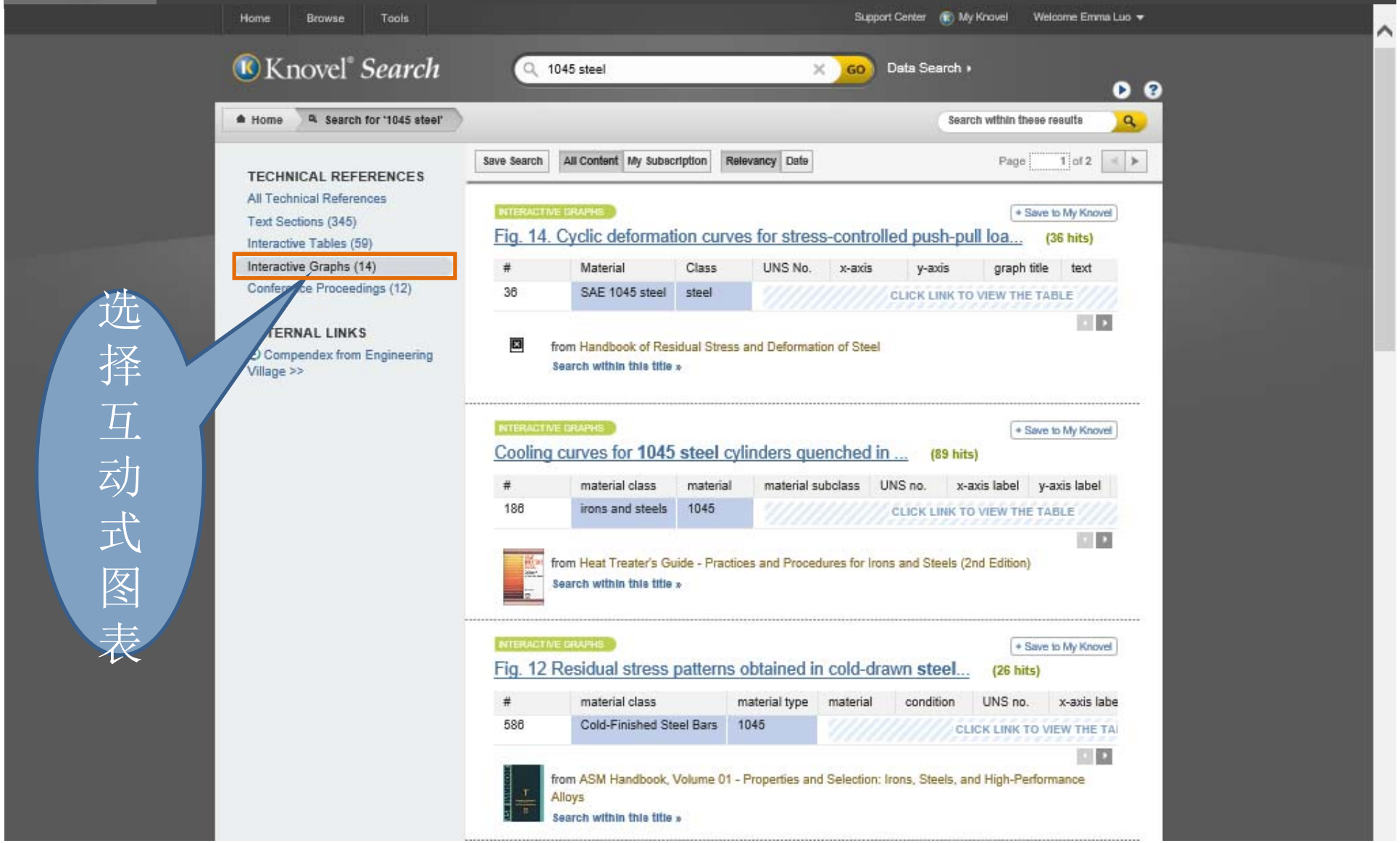


Knovel认知- Basic search-Tables-Graphs-Data search-Equations-Unit Converter-PeriodicTable



Knovel认知- Basic search-Tables Graphs-Data search-Equations-Unit Converter-PeriodicTable

互动式表格



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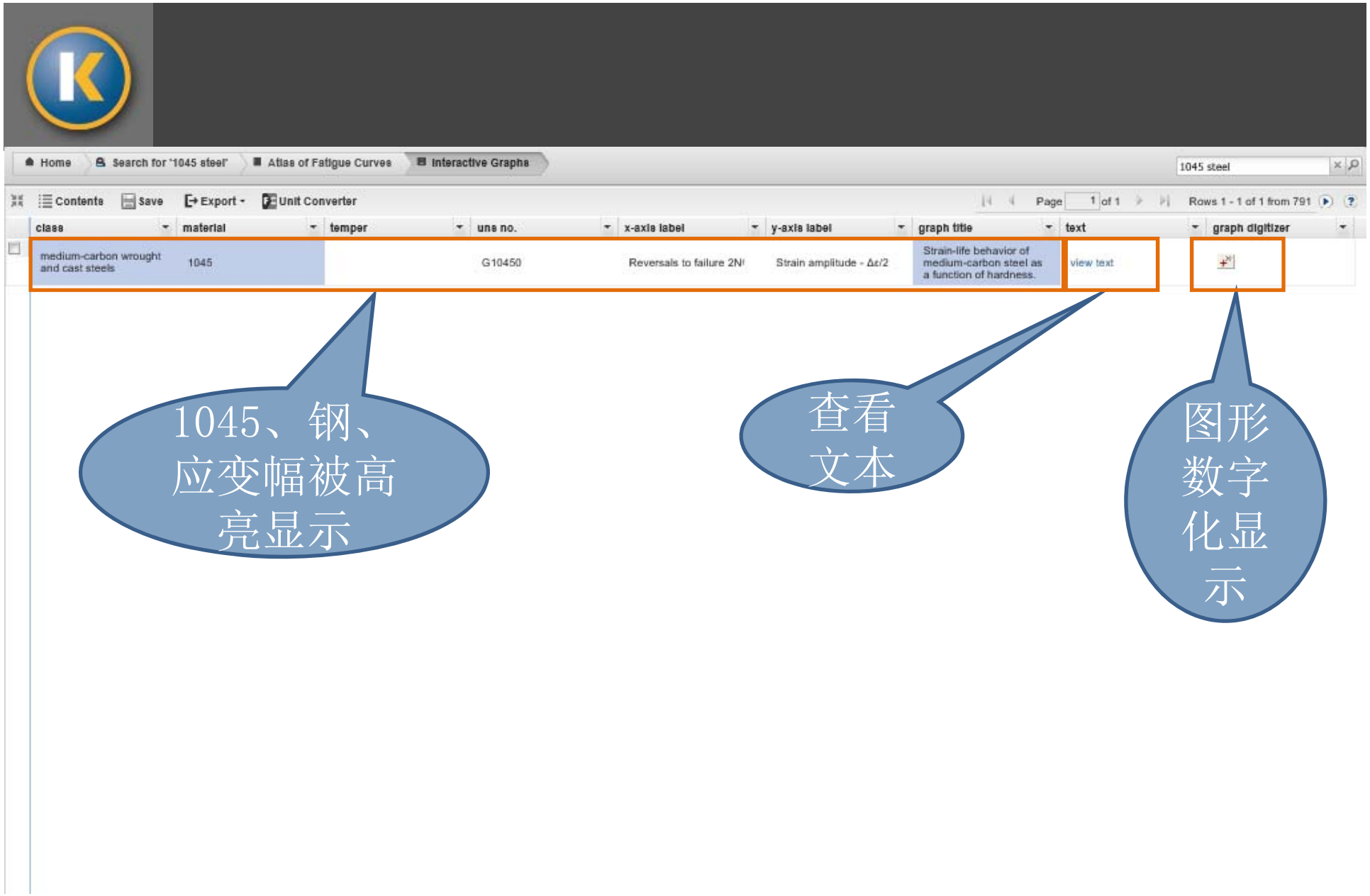

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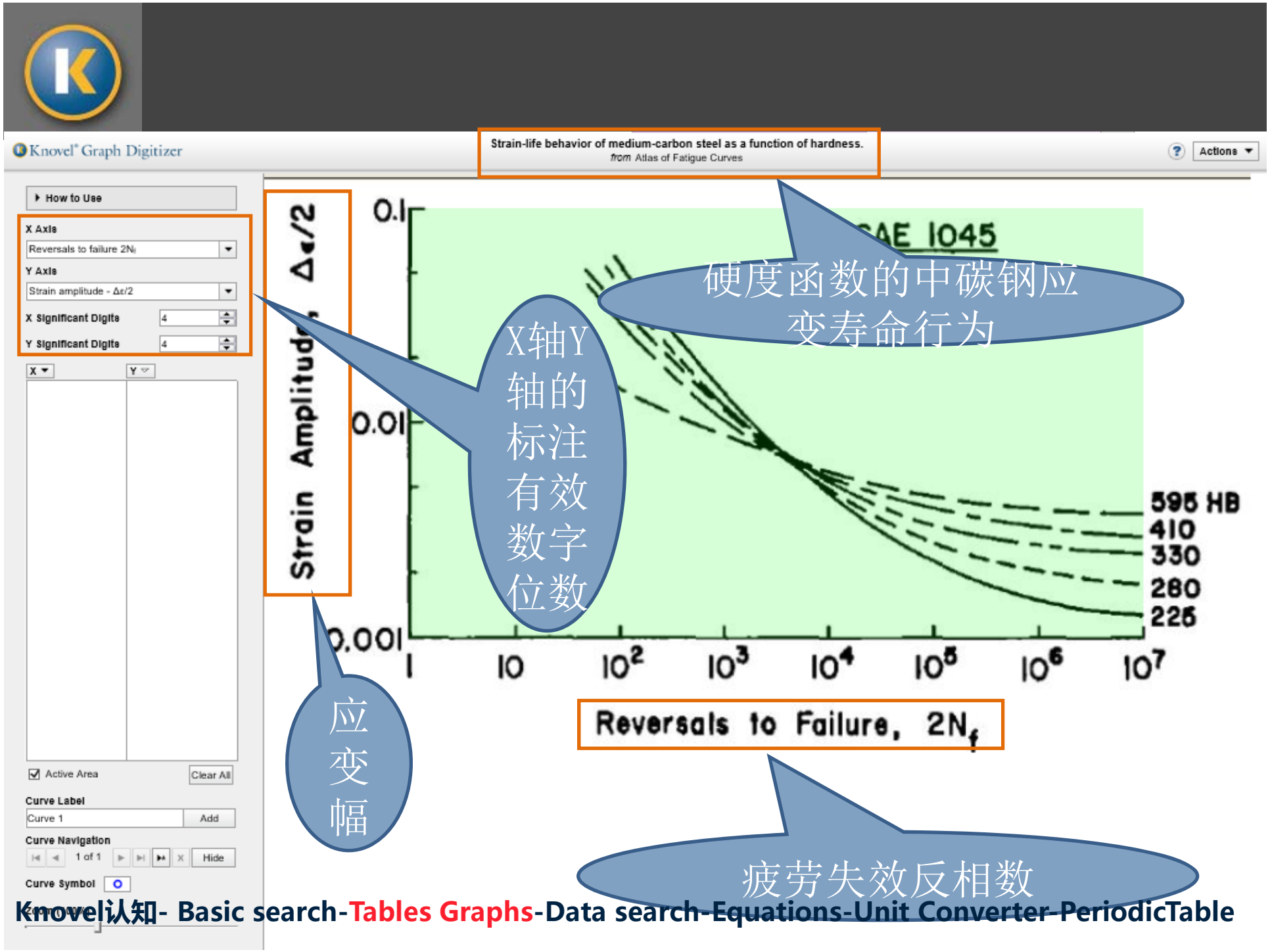

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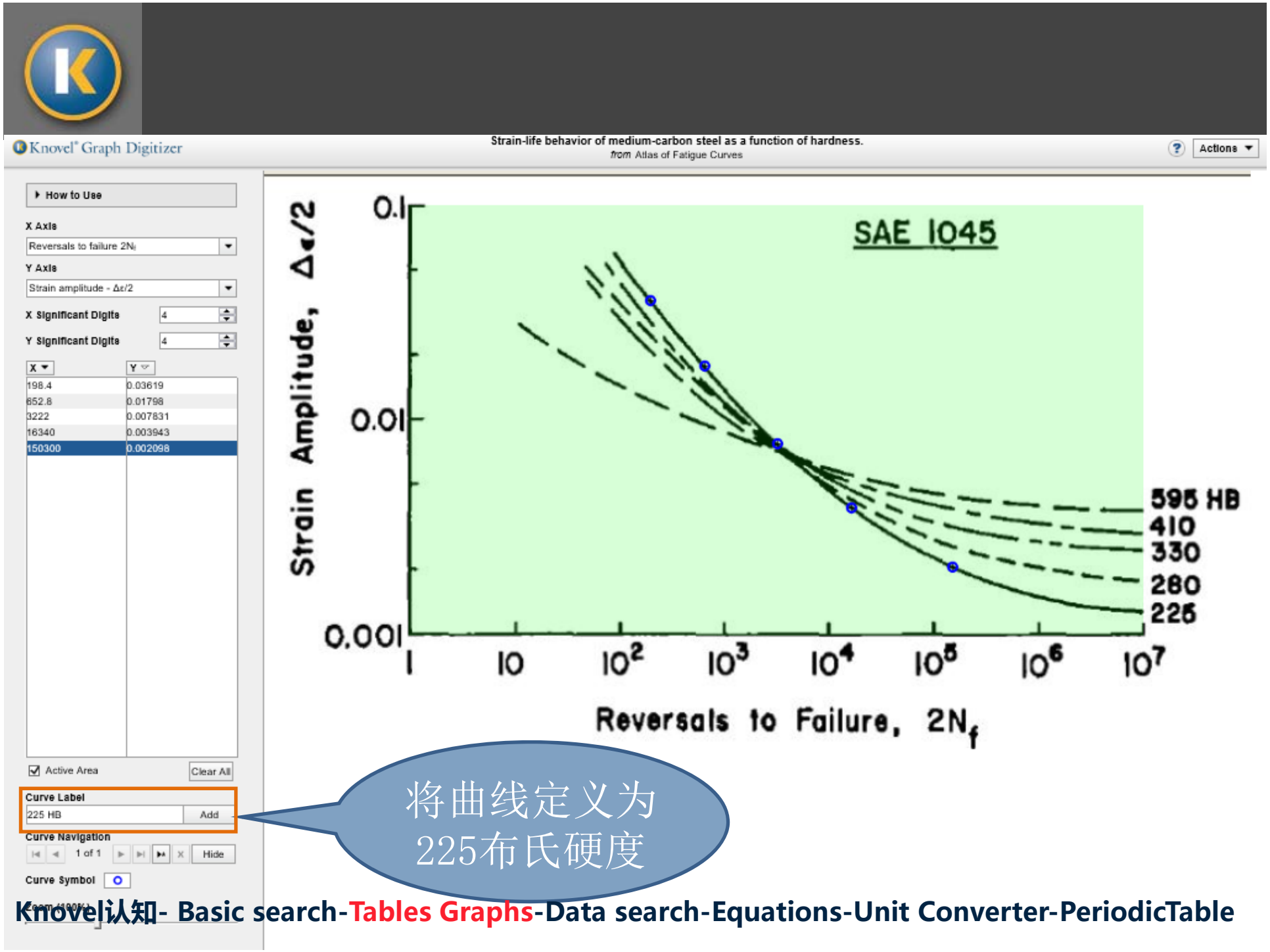
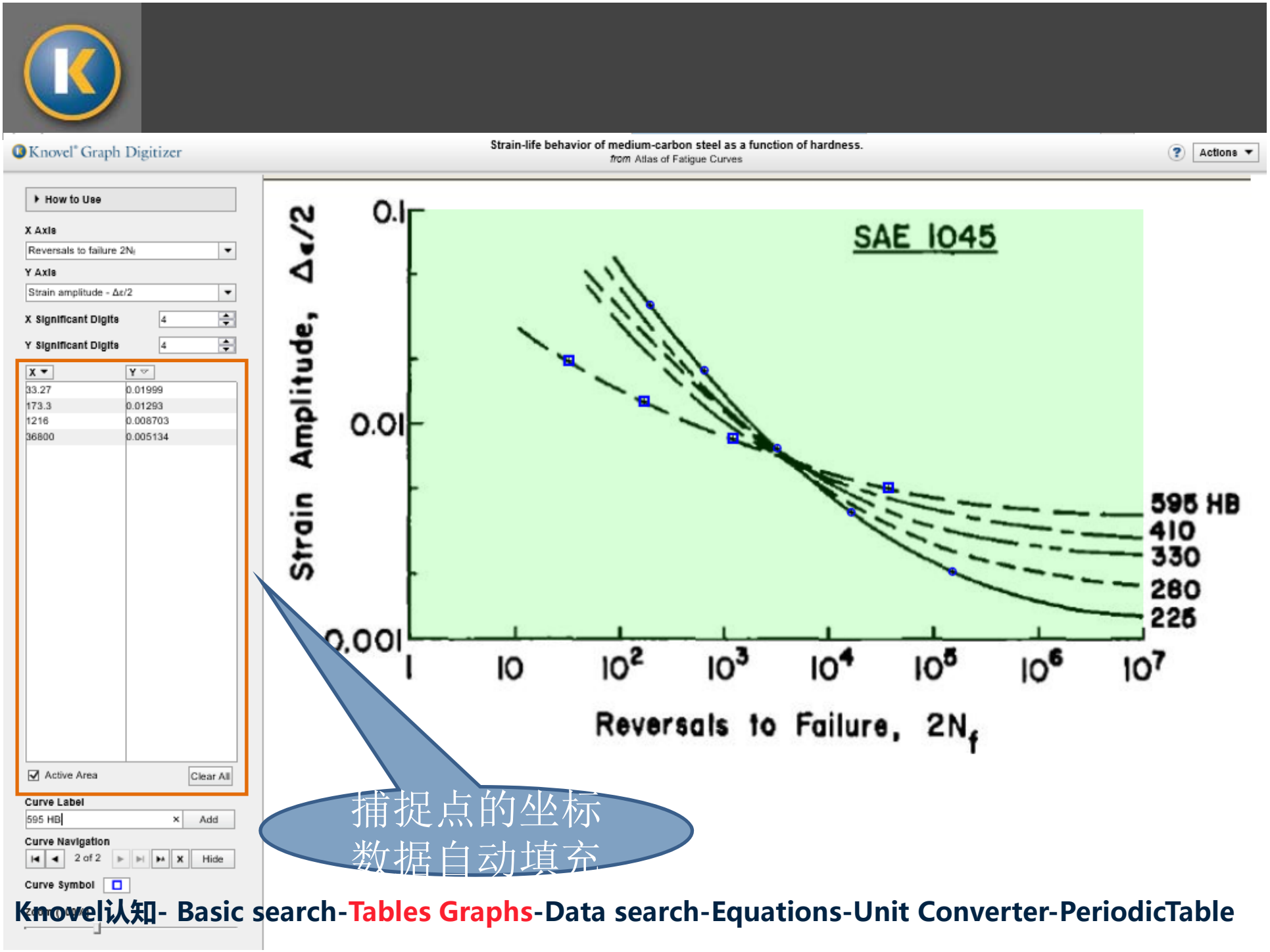


将曲线定义为
225布氏硬度

Knovel认知- Basic search-Tables Graphs-Data search-Equations-Unit Converter-PeriodicTable



Knovel认知- Basic search-Tables Graphs-Data search-Equations-Unit Converter-PeriodicTable

Knovel® Graph Digitizer

Strain-life behavior of medium-carbon steel as a function of hardness.
from Atlas of Fatigue Curves

Actions
Add to My Knovel
Export
Print

How to Use

X Axis
Reversals to failure $2N_f$

Y Axis
Strain amplitude - $\Delta\varepsilon/2$

X Significant Digits 4

Y Significant Digits 4

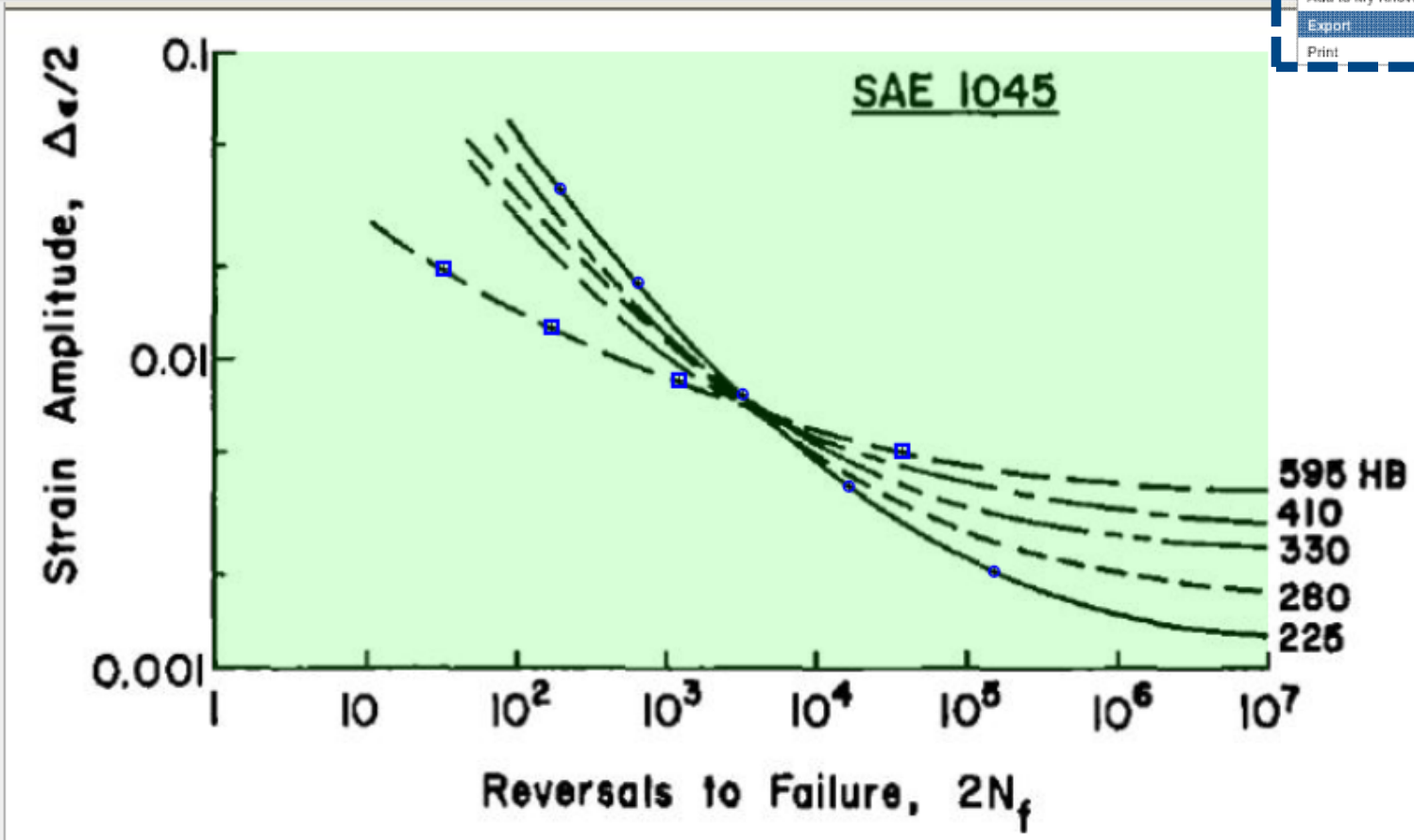
X	Y
33.27	0.01999
173.3	0.01293
1216	0.008703
36800	0.005134

Active Area Clear All

Curve Label
595 HB Add

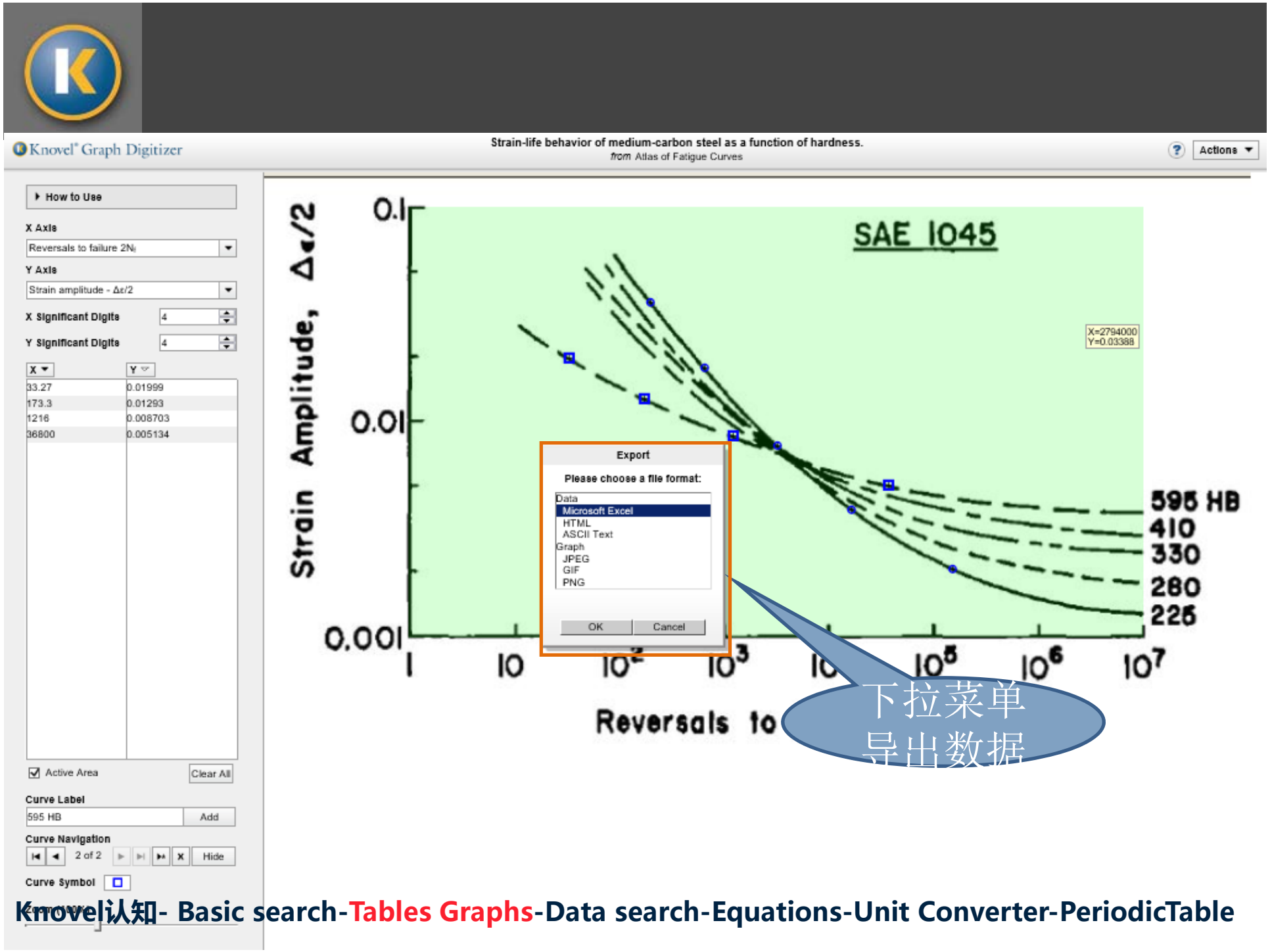
Curve Navigation
2 of 2 Hide

Curve Symbol



比较225布氏硬度
与595布氏硬度曲
线

Knovel认知- Basic search-Tables Graphs-Data search-Equations-Unit Converter-PeriodicTable



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X Significant Digits 4

Y Significant Digits 4

X	Y
36.08	0.01921
203.9	0.01243
1319	0.008588
37810	0.005134

Active Area

Clear All

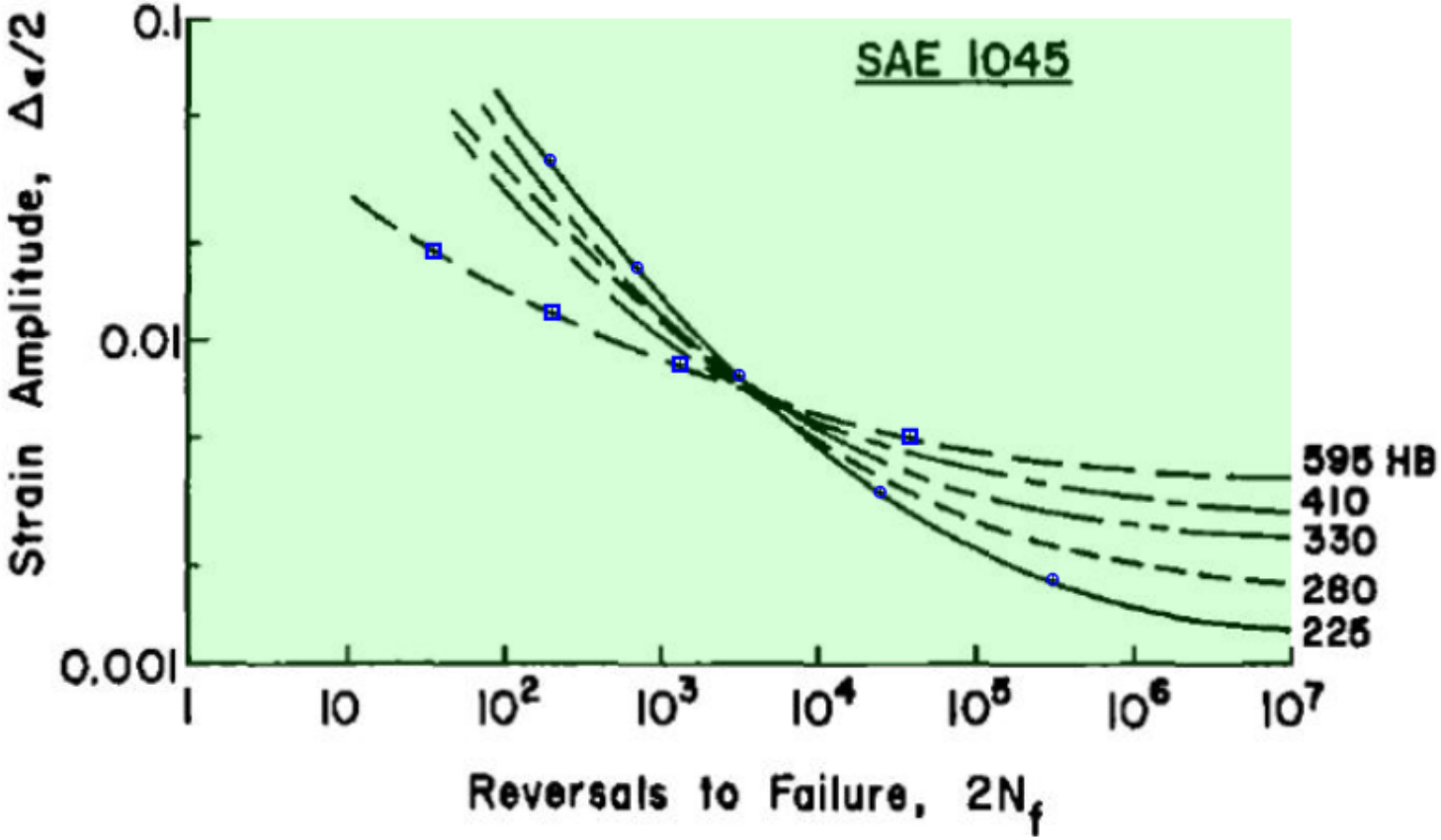
Curve Label
595 HB

Add

Curve Navigation
2 of 2

Hide

Curve Symbol



要打开或保存来自 app.knovel.com 的 Strain-life behavior of medium-carbon steel as a.xlsx 吗?

打开(O) 保存(S) 取消(C)

Knovel认知- Basic search-Tables Graphs-Data search-Equations-Unit Converter-PeriodicTable

Strain-life behavior of medium-carbon steel as a function of hardness.

225 HB	
Reversals to failure 2Nf	Strain amplitude - Δε/2
198.4	0.03667
707.9	0.01706
3136	0.007935
24520	0.003455
303700	0.001858

595 HB	
Reversals to failure 2Nf	Strain amplitude - Δε/2
36.08	0.01921
203.9	0.01243
1319	0.008588
37810	0.005134

225布氏硬度和595布氏硬度试算表格

Atlas of Fatigue Curves

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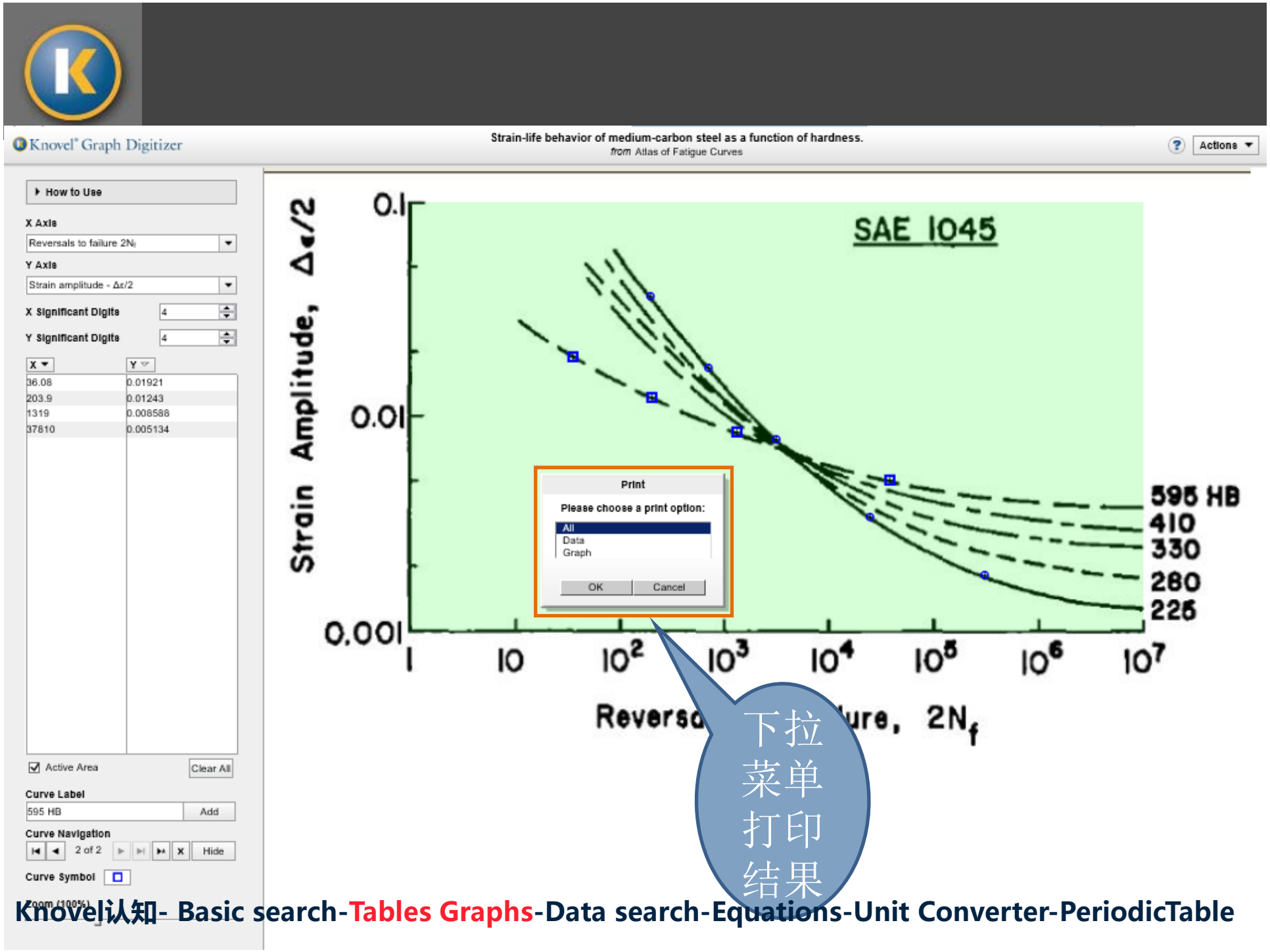
Knovel认知- Basic search-Tables Graphs-Data search-Equations-Unit Converter-PeriodicTable



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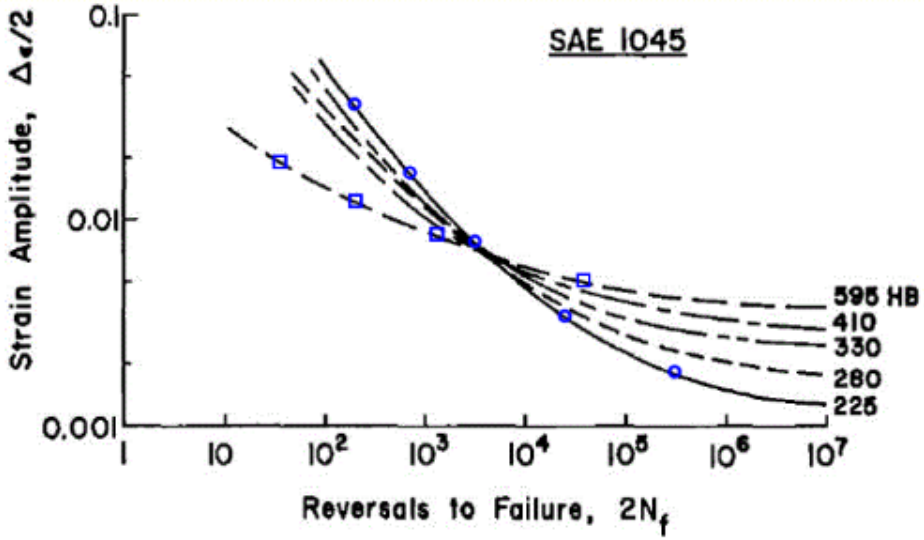

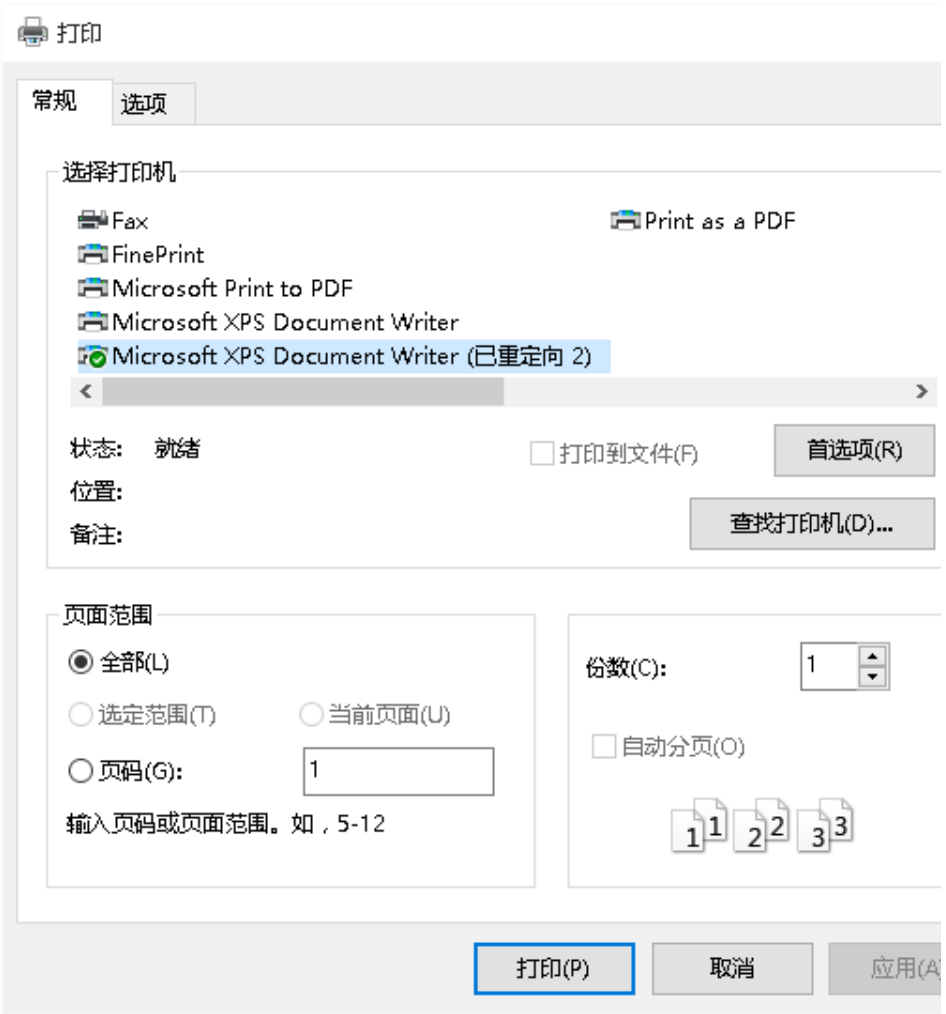

Atlas of Fatigue Curves
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问题：

氩气浓度大于或等于美立方英尺12磅的条件下他的导热性。

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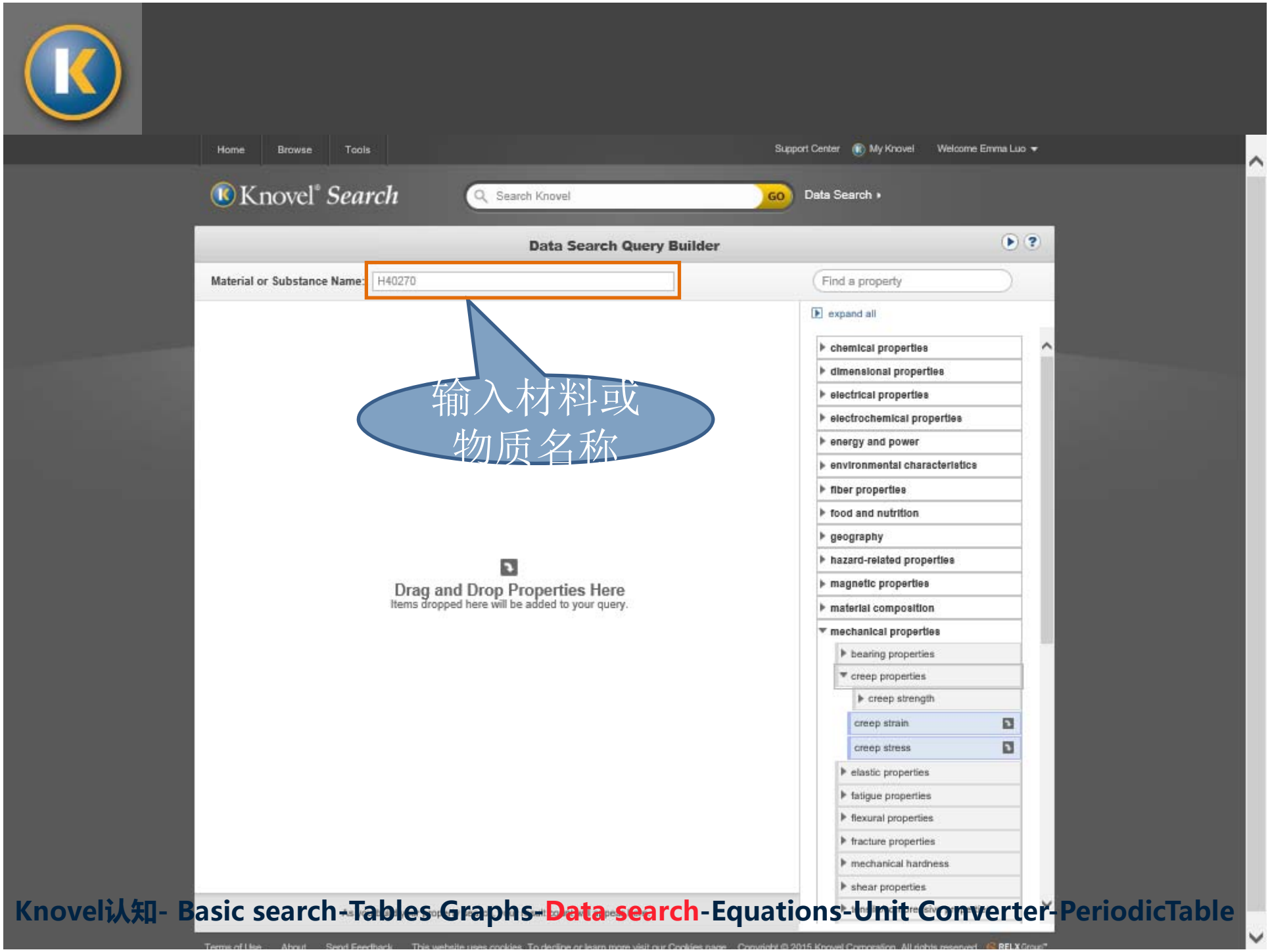

Knovel认知- Basic search-Tables Graphs-Data search-Equations-Unit Converter-PeriodicTable

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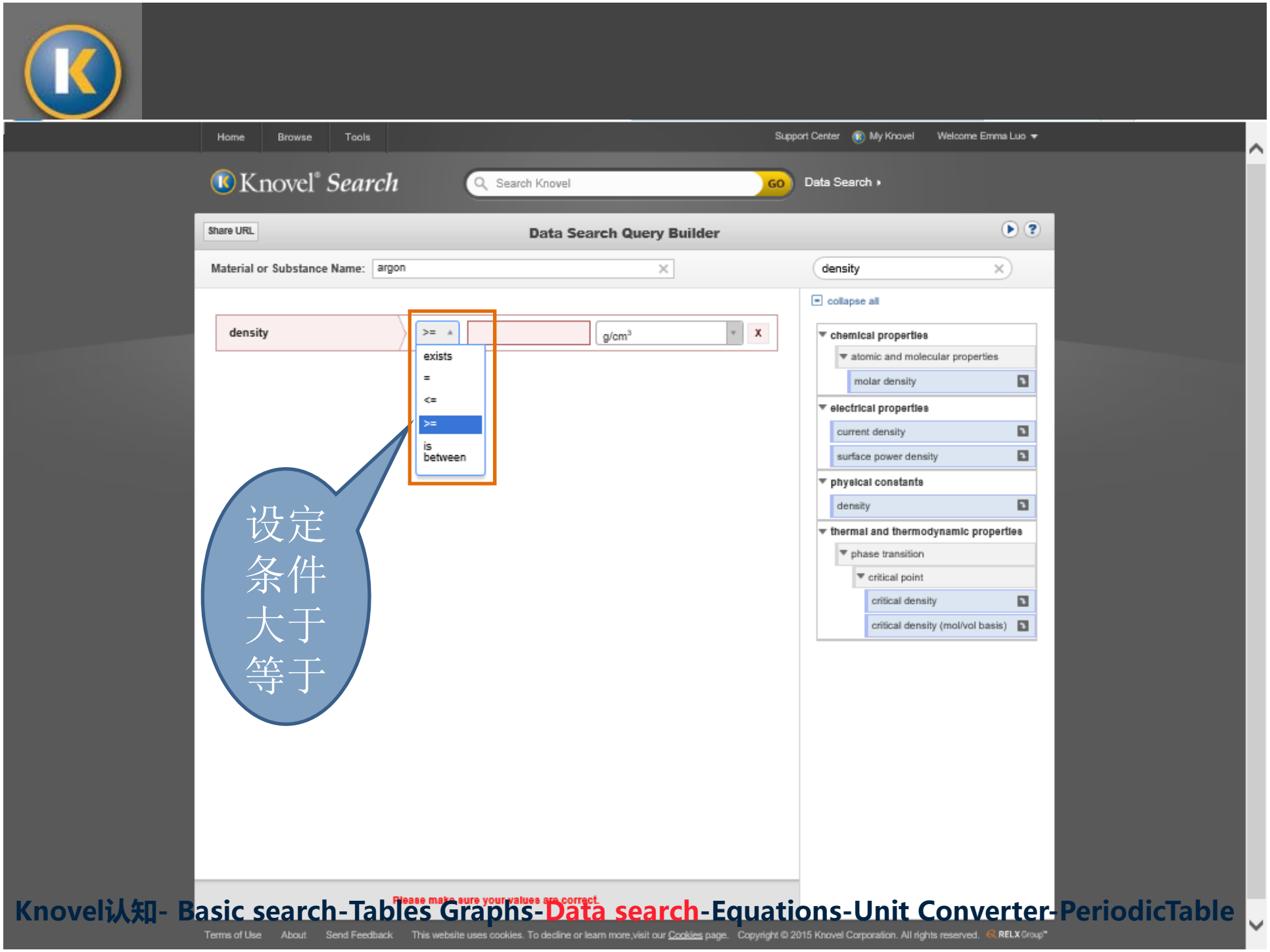
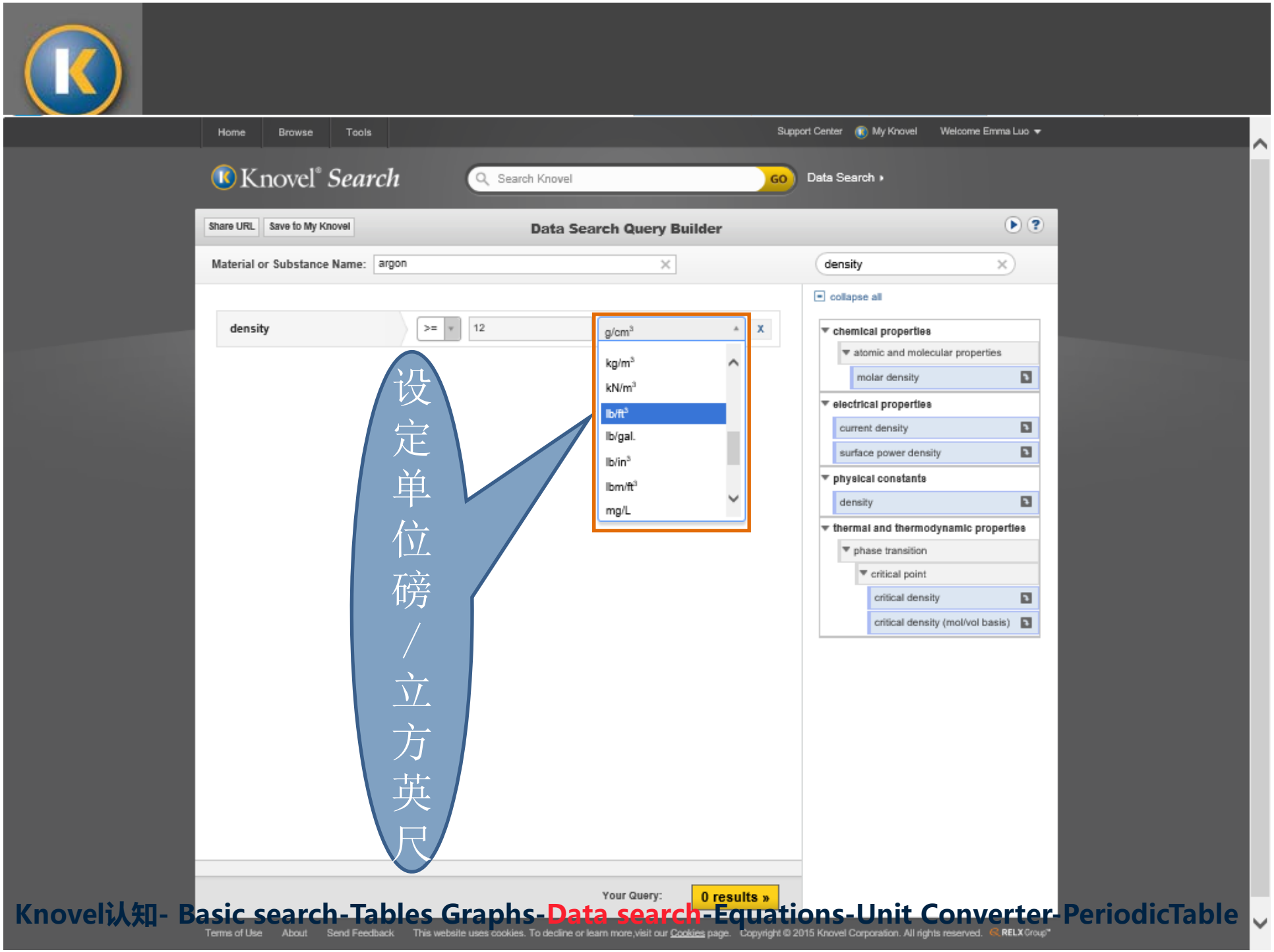
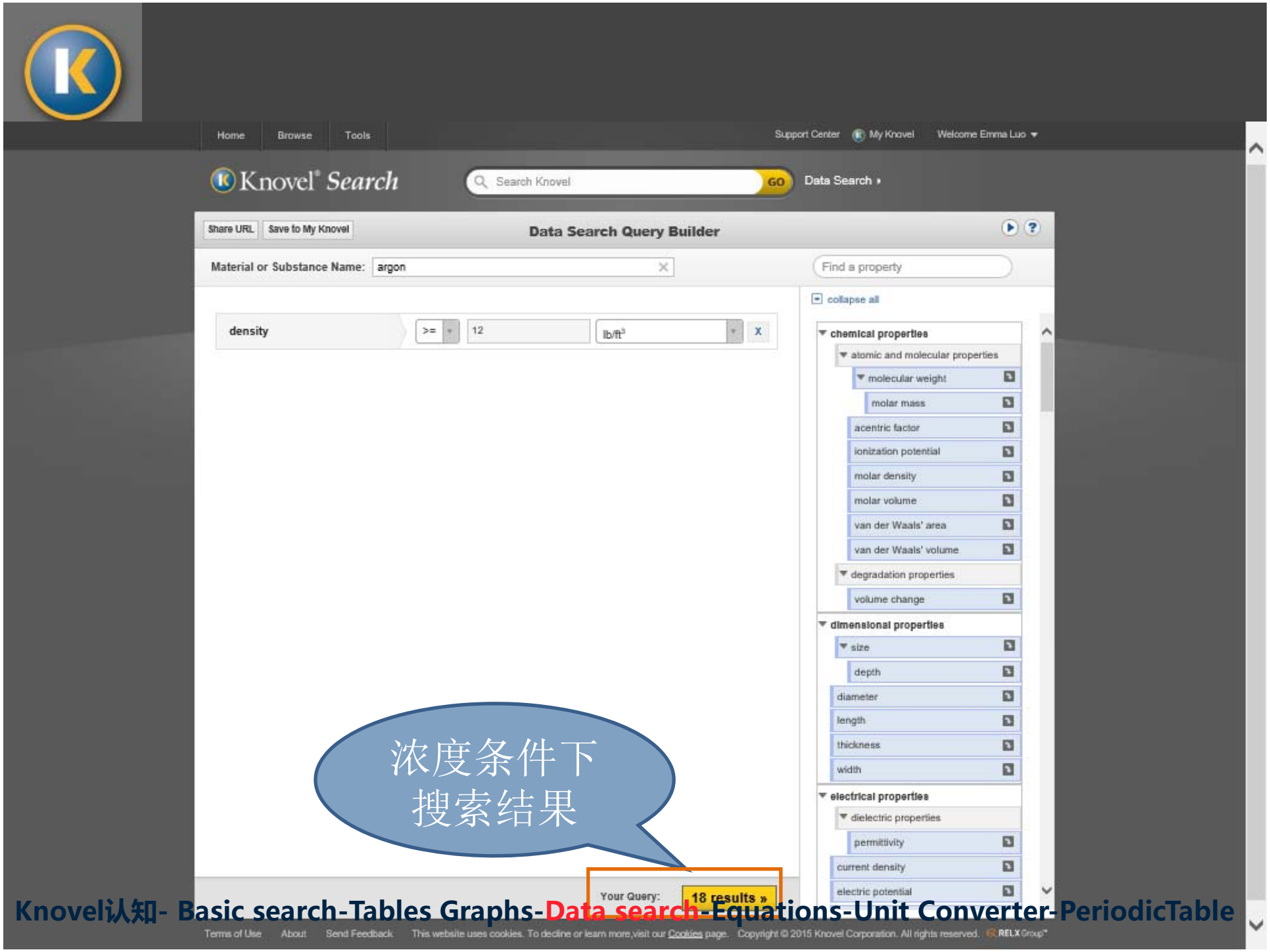


Knovel认知- Basic search-Tables Graphs-Data search-Equations-Unit Converter-PeriodicTable

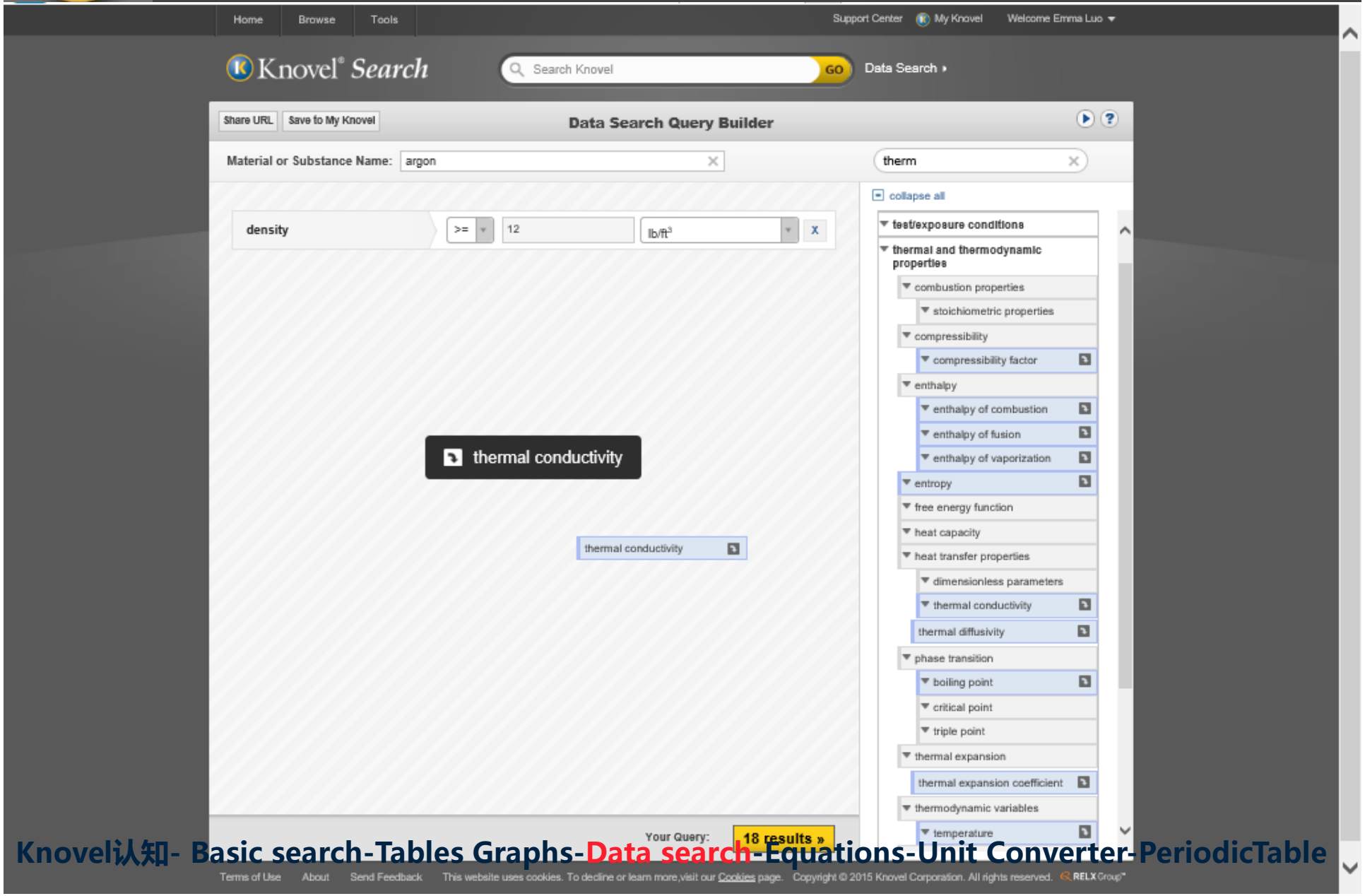


Knovel认知- Basic search-Tables Graphs-Data search-Equations-Unit Converter-PeriodicTable



浓度条件下
搜索结果

Knovel认知- Basic search-Tables Graphs-Data search-Equations-Unit Converter-PeriodicTable



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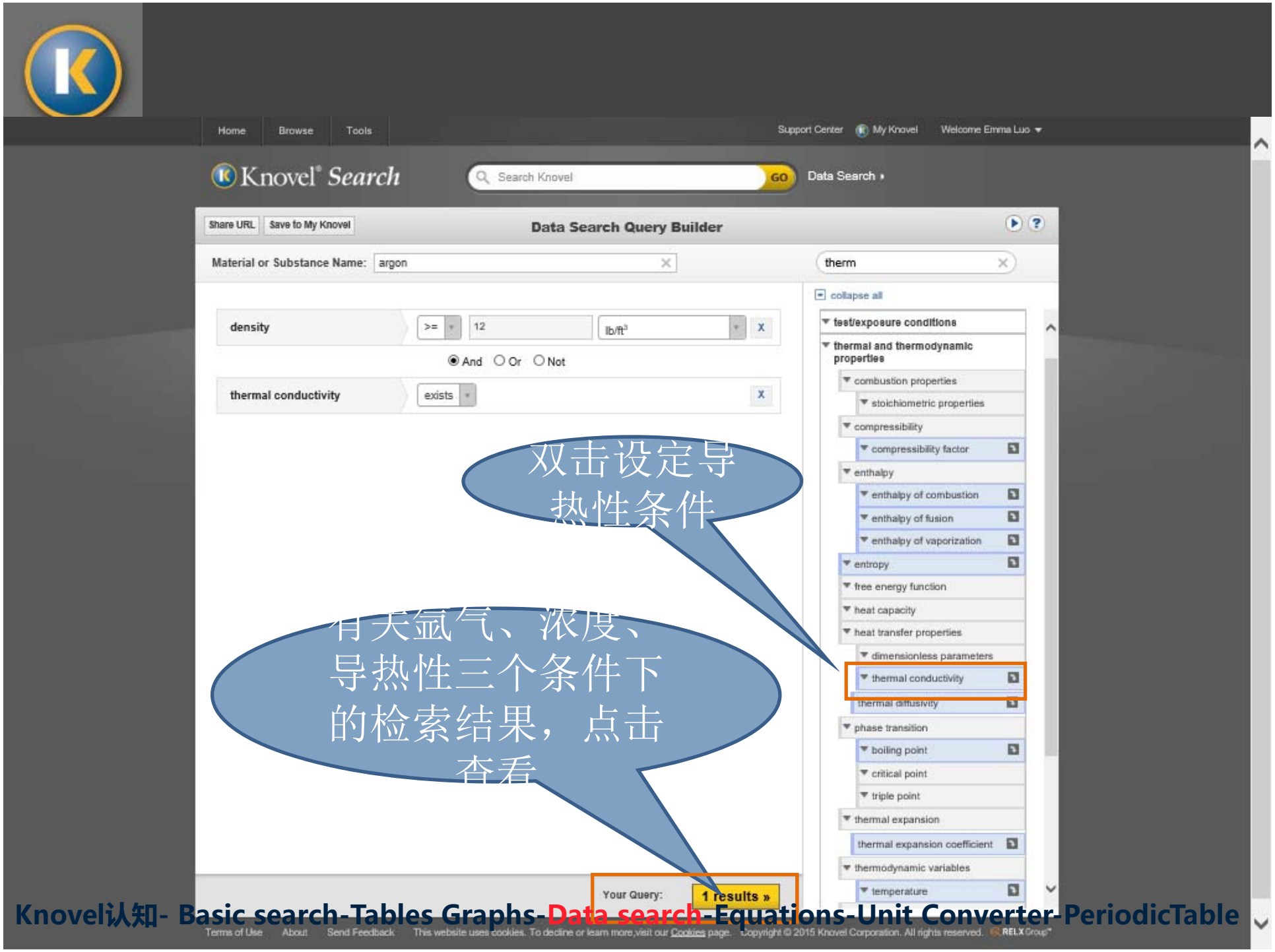

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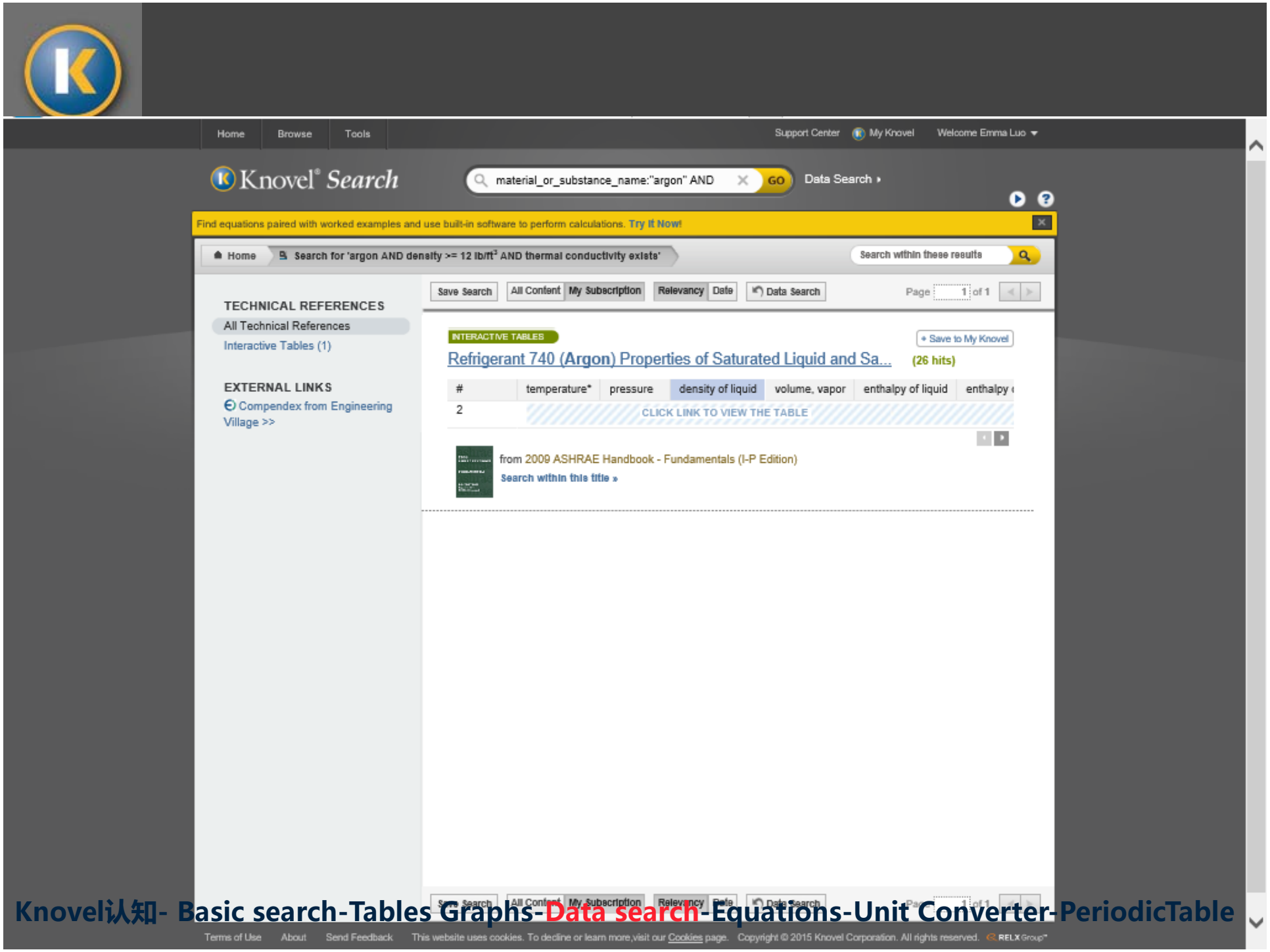

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temperature* (°R)	pressure (psia)	density of liquid (lb/ft³)	volume, vapor (ft³/lb)	enthalpy of liquid (Btu/lb)	enthalpy of vapor (Btu/lb)	entropy of liquid (Btu/(lb °R))	entropy of vapor (Btu/(lb °R))	specific heat of liquid, c_p (Btu/(lb °R))	specific heat of vapor, c_p (Btu/(lb °R))	c_p/c_v	velocity of sound, liquid (ft/s)	velocity of sound, vapor (ft/s)	viscosity of liquid (lb/(ft h))	visco vapo h))
150.85[a]	9.992	88.45	3.9507	-52.243	18.19	0.31775	0.78466	0.2667	0.1327	1.7093	2829	551.6	0.702	0.01
155	12.935	87.57	3.1188	-51.133	18.574	0.32498	0.7747	0.2668	0.1343	1.7192	2778	557.6	0.653	0.01
160	17.322	86.5	2.3862	-49.792	19.01	0.33343	0.76344	0.2675	0.1366	1.7332	2714	564.4	0.63	0.01
157.14[b]	14.696	87.11	2.7744	-50.558	18.765	0.32863	0.76978	0.267	0.1352	1.7249	2750	560.6	0.6	0.01
165	22.764	85.41	1.8565	-48.444	19.413	0.34165	0.75291	0.2688	0.1392	1.7499	2650	570.8	0.553	0.01
170	29.412	84.3	1.4661	-47.088	19.78	0.34967	0.743	0.2706	0.1423	1.7696	2584	576.7	0.511	0.01
175	37.423	83.17	1.1733	-45.72	20.107	0.35749	0.73365	0.2729	0.1458	1.7926	2518	582.1	0.473	0.01
180	46.958	82.01	0.9502	-44.338	20.393	0.36516	0.72477	0.2758	0.1498	1.8196	2450	587	0.439	0.02
185	58.183	80.83	0.7776	-42.939	20.632	0.37268	0.71631	0.2791	0.1545	1.8512	2382	591.4	0.408	0.02
190	71.266	79.61	0.6424	-41.521	20.822	0.38009	0.7082	0.2831	0.1598	1.888	2311	595.3	0.38	0.02
195	86.376	78.35	0.5351	-40.081	20.958	0.38738	0.7004	0.2878	0.166	1.9311	2239	598.7	0.354	0.02
200	103.69	77.06	0.449	-38.615	21.035	0.3946	0.69285	0.2933	0.1732	1.9816	2166	601.6	0.331	0.02
205	123.38	75.72	0.3792	-37.12	21.05	0.40174	0.6855	0.2998	0.1817	2.0412	2090	604	0.309	0.02
210	145.62	74.34	0.322	-35.593	20.995	0.40884	0.67831	0.3074	0.1916	2.112	2013	605.8	0.289	0.02
215	170.6	72.89	0.2748	-34.027	20.864	0.41591	0.67122	0.3164	0.2035	2.1967	1933	607	0.27	0.02
220	198.49	71.38	0.2354	-32.416	20.647	0.42299	0.66419	0.3273	0.2179	2.2994	1850	607.8	0.253	0.02
225	229.5	69.79	0.2023	-30.755	20.335	0.43009	0.65716	0.3407	0.2356	2.4256	1765	607.9	0.236	0.02
230	263.81	68.11	0.1742	-29.033	19.914	0.43725	0.65007	0.3573	0.2578	2.5835	1675	607.3	0.22	0.02
235	301.62	66.31	0.1502	-27.237	19.366	0.44453	0.64284	0.3785	0.2864	2.786	1582	606.2	0.205	0.02
240	343.16	64.38	0.1294	-25.352	18.666	0.45197	0.63538	0.4064	0.3245	3.0547	1483	604.3	0.19	0.03
245	388.66	62.28	0.1114	-23.353	17.78	0.45967	0.62755	0.4449	0.378	3.4258	1378	601.6	0.175	0.03
250	438.38	59.94	0.0954	-21.203	16.655	0.46774	0.61917	0.5012	0.4583	3.9666	1267	597.6	0.16	0.03
255	492.61	57.26	0.0812	-18.844	15.206	0.4764	0.60993	0.5913	0.5911	4.8227	1145	591.5	0.145	0.03
260	551.7	54.06	0.0681	-16.163	13.273	0.48605	0.59926	0.7594	0.8483	6.3925	1006	581.9	0.129	0.03
265	616.14	49.89	0.0554	-12.891	10.47	0.49764	0.58579	1.196	1.5406	10.302	833	564.9	0.112	0.04
270	686.7	42.48	0.0406	-7.692	4.957	0.516	0.56285	5.636	8.4769	43.1571	573	515.1	0.089	0.05

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temperature* (°R)	pressure (psia)	den liqu		y of tu/lb)	enthalpy of vapor (Btu/lb)	entropy of liquid (Btu/(lb °R))	entropy of vapor (Btu/(lb °R))	specific heat of liquid, c_p (Btu/(lb °R))	specific heat of vapor, c_p (Btu/(lb °R))	c_p/c_v	velocity of sound, liquid (ft/s)	velocity of sound, vapor (ft/s)	viscosity of liquid (lb/(ft h))	visco vapo h))
150.85[a]	9.992	88.45	3.9507	-52.243	18.19	0.31775	0.78466	0.2667	0.1327	1.7093	2829	551.6	0.702	0.01
155	12.935	87.57	3.1188	-51.133	18.574	0.32498	0.7747	0.2668	0.1343	1.7192	2778	557.6	0.653	0.01
160	17.322	86.5	2.3862	-49.792	19.01	0.33343	0.76344	0.2675	0.1366	1.7332	2714	564.4	0.63	0.01
157.14[b]	14.696	87.11	2.7744	-50.558	18.765	0.32863	0.76978	0.267	0.1352	1.7249	2750	560.6	0.6	0.01
165	22.764	85.41	1.8565	-48.444	19.413	0.34165	0.75291	0.2688	0.1392	1.7499	2650	570.8	0.553	0.01
170	29.412	84.3	1.4661	-47.088	19.78	0.34967	0.743	0.2706	0.1423	1.7696	2584	576.7	0.511	0.01
175	37.423	83.17	1.1733	-45.72	20.107	0.35749	0.73365	0.2729	0.1458	1.7926	2518	582.1	0.473	0.01
180	46.958	82.01	0.9502	-44.338	20.393	0.36516	0.72477	0.2758	0.1498	1.8196	2450	587	0.439	0.02
185	58.183	80.83	0.7776	-42.939	20.632	0.37268	0.71631	0.2791	0.1545	1.8512	2382	591.4	0.408	0.02
190	71.266	79.61	0.6424	-41.521	20.822	0.38009	0.7082	0.2831	0.1598	1.888	2311	595.3	0.38	0.02
195	86.376	78.35	0.5351	-40.081	20.958	0.38738	0.7004	0.2878	0.166	1.9311	2239	598.7	0.354	0.02
200	103.69	77.06	0.449	-38.615	21.035	0.3946	0.69285	0.2933	0.1732	1.9816	2166	601.6	0.331	0.02
205	123.38	75.72	0.3792	-37.12	21.05	0.40174	0.6855	0.2998	0.1817	2.0412	2090	604	0.309	0.02
210	145.62	74.34	0.322	-35.593	20.995	0.40884	0.67831	0.3074	0.1916	2.112	2013	605.8	0.289	0.02
215	170.6	72.89	0.2748	-34.027	20.864	0.41591	0.67122	0.3164	0.2035	2.1967	1933	607	0.27	0.02
220	198.49	71.38	0.2354	-32.416	20.647	0.42299	0.66419	0.3273	0.2179	2.2994	1850	607.8	0.253	0.02
225	229.5	69.79	0.2023	-30.755	20.335	0.43009	0.65716	0.3407	0.2356	2.4256	1765	607.9	0.236	0.02
230	263.81	68.11	0.1742	-29.033	19.914	0.43725	0.65007	0.3573	0.2578	2.5835	1675	607.3	0.22	0.02
235	301.62	66.31	0.1502	-27.237	19.366	0.44453	0.64284	0.3785	0.2864	2.786	1582	606.2	0.205	0.02
240	343.16	64.38	0.1294	-25.352	18.666	0.45197	0.63538	0.4064	0.3245	3.0547	1483	604.3	0.19	0.03
245	388.66	62.28	0.1114	-23.353	17.78	0.45967	0.62755	0.4449	0.378	3.4258	1378	601.6	0.175	0.03
250	438.38	59.94	0.0954	-21.203	16.655	0.46774	0.61917	0.5012	0.4583	3.9666	1267	597.6	0.16	0.03
255	492.61	57.26	0.0812	-18.844	15.206	0.4764	0.60993	0.5913	0.5911	4.8227	1145	591.5	0.145	0.03
260	551.7	54.06	0.0681	-16.163	13.273	0.48605	0.59926	0.7594	0.8483	6.3925	1006	581.9	0.129	0.03
265	616.14	49.89	0.0554	-12.891	10.47	0.49764	0.58579	1.196	1.5406	10.302	833	564.9	0.112	0.04
270	686.7	42.48	0.0406	-7.692	4.957	0.516	0.56285	5.636	8.4769	43.1571	573	515.1	0.089	0.05

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temperature* (°R)	pressure (psia)	density of liquid (lb/ft³)	volume, vapor (ft³/lb)	enthalpy of liquid (Btu/lb)	enthalpy of vapor (Btu/lb)	entropy of liquid (Btu/(lb °R))	entropy of vapor (Btu/(lb °R))	specific heat of liquid, c_p (Btu/(lb °R))	specific heat of vapor, c_p (Btu/(lb °R))	c_p/c_v	velocity of sound, liquid (ft/s)	velocity of sound, vapor (ft/s)	viscosity of liquid (lb/(ft h))	visco vapo h))
150.85[a]	9.992	88.45	3.9507	-52.243	18.19	0.31775	0.78466	0.2667	0.1327	1.7093	2829	551.6	0.702	0.01
155	12.935	87.57	3.1188	-51.133	18.574	0.32498	0.7747	0.2668	0.1343	1.7192	2778	557.6	0.653	0.01
160	17.322	86.5	2.3862	-49.792	19.01	0.33343	0.76344	0.2675	0.1366	1.7332	2714	564.4	0.63	0.01
157.14[b]	14.696	87.11	2.7744	-50.558	18.765	0.32863	0.76978	0.267	0.1352	1.7249	2750	560.6	0.6	0.01
165	22.764	85.41	1.8565	-48.444	19.413	0.34165	0.75291	0.2688	0.1392	1.7499	2650	570.8	0.553	0.01
170	29.412	84.3	1.4661	-47.088	19.78	0.34967	0.743	0.2706	0.1423	1.7696	2584	576.7	0.511	0.01
175	37.423	83.17	1.1733	-45.72	20.107	0.35749	0.73365	0.2729	0.1458	1.7926	2518	582.1	0.473	0.01
180	46.958	82.01	0.9502	-44.338	20.393	0.36516	0.72477	0.2758	0.1498	1.8196	2450	587	0.439	0.02
185	58.183	80.83	0.7776	-42.939	20.632	0.37268	0.71631	0.2791	0.1545	1.8512	2382	591.4	0.408	0.02
190	71.266	79.61	0.6424	-41.521	20.822	0.38009	0.7082	0.2831	0.1598	1.888	2311	595.3	0.38	0.02
195	86.376	78.35	0.5351	-40.081	20.958	0.38738	0.7004	0.2878	0.166	1.9311	2239	598.7	0.354	0.02
200	103.69	77.06	0.449	-38.615	21.035	0.3946	0.69285	0.2933	0.1732	1.9816	2166	601.6	0.331	0.02
205	123.38	75.72	0.3792	-37.12	21.05	0.40174	0.6855	0.2998	0.1817	2.0412	2090	604	0.309	0.02
210	145.62	74.34	0.322	-35.593	20.995	0.40884	0.67831	0.3074	0.1916	2.112	2013	605.8	0.289	0.02
215	170.6	72.89	0.2748	-34.027	20.864	0.41591	0.67122	0.3164	0.2035	2.1967	1933	607	0.27	0.02
220	198.49	71.38	0.2354	-32.416	20.647	0.42299	0.66419	0.3273	0.2179	2.2994	1850	607.8	0.253	0.02
225	229.5	69.79	0.2023	-30.755	20.335	0.43009	0.65716	0.3407	0.2356	2.4256	1765	607.9	0.236	0.02
230	263.81	68.11	0.1742	-29.033	19.914	0.43725	0.65007	0.3573	0.2578	2.5835	1675	607.3	0.22	0.02
235	301.62	66.31	0.1502	-27.237	19.366	0.44453	0.64284	0.3785	0.2864	2.786	1582	606.2	0.205	0.02
240	343.16	64.38	0.1294	-25.352	18.666	0.45197	0.63538	0.4064	0.3245	3.0547	1483	604.3	0.19	0.03
245	388.66	62.28	0.1114	-23.353	17.78	0.45967	0.62755	0.4449	0.378	3.4258	1378	601.6	0.175	0.03
250	438.38	59.94	0.0954	-21.203	16.655	0.46774	0.61917	0.5012	0.4583	3.9666	1267	597.6	0.16	0.03
255	492.61	57.26	0.0812	-18.844	15.206	0.4764	0.60993	0.5913	0.5911	4.8227	1145	591.5	0.145	0.03
260	551.7	54.06	0.0681	-16.163	13.273	0.48605	0.59926	0.7594	0.8483	6.3925	1008	581.9	0.129	0.03
265	616.14	49.89	0.0554	-12.891	10.47	0.49764	0.58579	1.196	1.5406	10.302	833	564.9	0.112	0.04
270	686.7	42.48	0.0406	-7.692	4.957	0.516	0.56285	5.636	8.4769	43.1571	573	515.1	0.089	0.05

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R4 thermal conductivity, vapor (Btu/(ft h ° R))

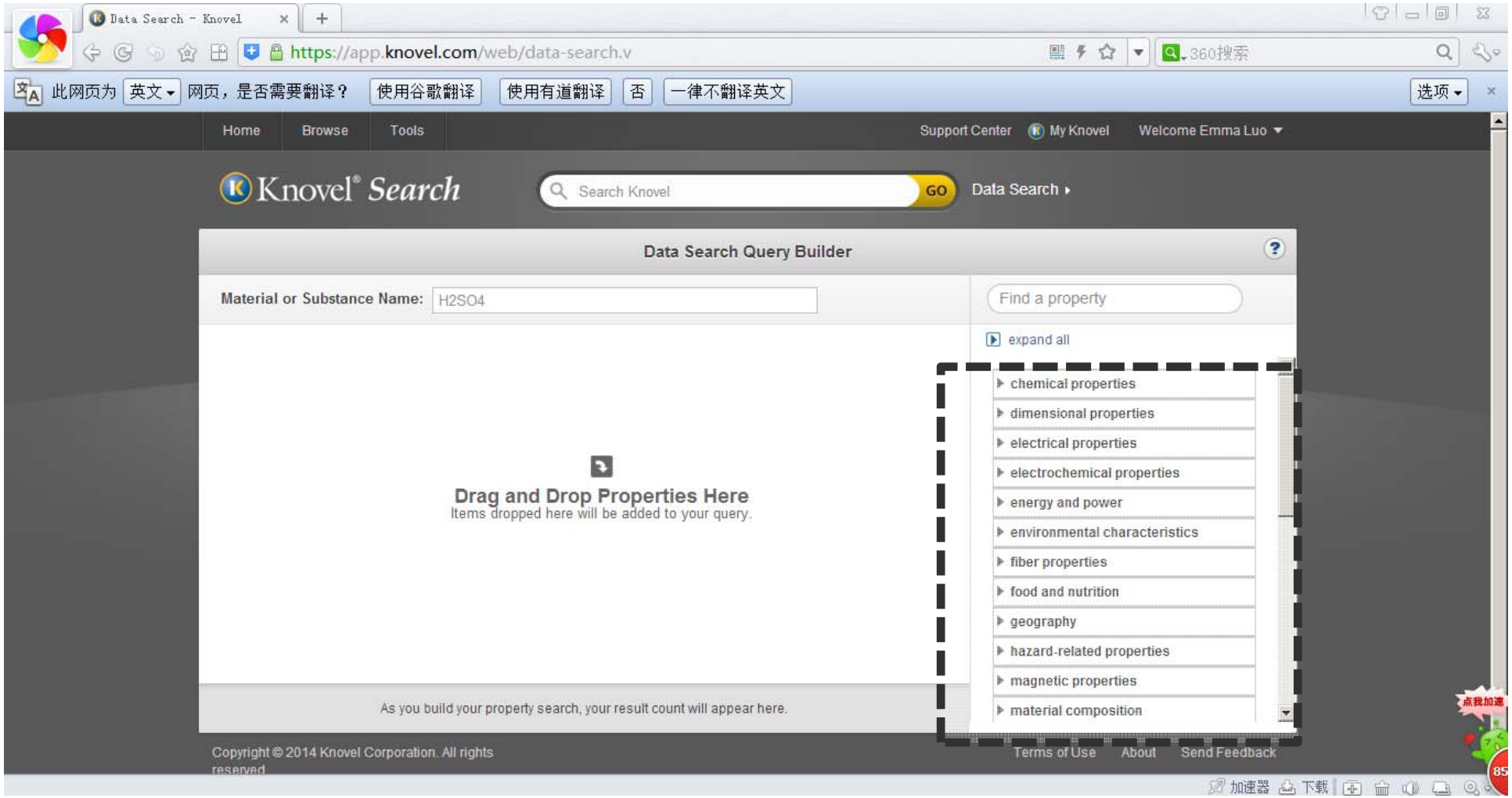
Title: 2009 ASHRAE Handbook - Fundamentals (I-P Edition)

Table: Refrigerant 740 (Argon) Properties of Saturated Liquid and Saturated Vapor

	temperat	pressure	~~density of liqu~~	~~volume,~~	enthalpy	enthalpy	entropy o	entropy o	~~specific~~	~~specific~~	~~c_p/c_v~~	velocity	velocity	viscosity	viscosity	thermal conduc	thermal co	surface ten
	~~150.86~~*	9.992	88.45	3.9507	-52.243	18.19	0.31775	0.78466	0.2667	0.1327	1.7093	2829	551.6	0.702	0.0166	0.0773	0.0031	13.42
	155	12.935	87.57	3.1188	-51.133	18.574	0.32498	0.7747	0.2668	0.1343	1.7192	2778	557.6	0.653	0.0171	0.0753	0.0032	12.83
	160	17.322	86.5	2.3862	-49.792	19.01	0.33343	0.76344	0.2675	0.1366	1.7332	2714	564.4	0.63	0.0173	0.0743	0.00325	12.53
	~~157.14~~*	14.696	87.11	2.7744	-50.558	18.765	0.32863	0.76978	0.267	0.1352	1.7249	2750	560.6	0.6	0.0177	0.0729	0.00332	12.13
	165	22.764	85.41	1.8565	-48.444	19.413	0.34165	0.75291	0.2688	0.1392	1.7499	2650	570.8	0.553	0.0183	0.0706	0.00345	11.44
	170	29.412	84.3	1.4661	-47.088	19.78	0.34967	0.743	0.2706	0.1423	1.7696	2584	576.7	0.511	0.0189	0.0683	0.00358	10.76
	175	37.423	83.17	1.1733	-45.72	20.107	0.35749	0.73365	0.2729	0.1458	1.7926	2518	582.1	0.473	0.0196	0.066	0.00372	10.08
	180	46.958	82.01	0.9502	-44.338	20.393	0.36516	0.72477	0.2758	0.1498	1.8196	2450	587	0.439	0.0202	0.0637	0.00387	9.42
	185	58.183	80.83	0.7776	-42.939	20.632	0.37268	0.71631	0.2791	0.1545	1.8512	2382	591.4	0.408	0.0209	0.0615	0.00402	8.76
	190	71.266	79.61	0.6424	-41.521	20.822	0.38009	0.7082	0.2831	0.1598	1.888	2311	595.3	0.38	0.0215	0.0593	0.00418	8.12
	195	86.376	78.35	0.5351	-40.081	20.958	0.38738	0.7004	0.2878	0.166	1.9311	2239	598.7	0.354	0.0222	0.0571	0.00436	7.49
	200	103.69	77.06	0.449	-38.615	21.035	0.3946	0.69285	0.2933	0.1732	1.9816	2166	601.6	0.331	0.023	0.0549	0.00455	6.86
	205	123.38	75.72	0.3792	-37.12	21.05	0.40174	0.6855	0.2998	0.1817	2.0412	2090	604	0.309	0.0237	0.0527	0.00475	6.25
	210	145.62	74.34	0.322	-35.593	20.995	0.40884	0.67831	0.3074	0.1916	2.112	2013	605.8	0.289	0.0245	0.0506	0.00498	5.66
	215	170.6	72.89	0.2748	-34.027	20.864	0.41591	0.67122	0.3164	0.2035	2.1967	1933	607	0.27	0.0253	0.0485	0.00524	5.07
	220	198.49	71.38	0.2354	-32.416	20.647	0.42299	0.66419	0.3273	0.2179	2.2994	1850	607.8	0.253	0.0262	0.0464	0.00553	4.5
	225	229.5	69.79	0.2023	-30.755	20.335	0.43009	0.65716	0.3407	0.2356	2.4256	1765	607.9	0.236	0.0272	0.0444	0.00586	3.95
	230	263.81	68.11	0.1742	-29.033	19.914	0.43725	0.65007	0.3573	0.2578	2.5835	1675	607.3	0.22	0.0282	0.0423	0.00625	3.41
	235	301.62	66.31	0.1502	-27.237	19.366	0.44453	0.64284	0.3785	0.2864	2.786	1582	606.2	0.205	0.0293	0.0403	0.00672	2.89
	240	343.16	64.38	0.1294	-25.352	18.666	0.45197	0.63538	0.4064	0.3245	3.0547	1483	604.3	0.19	0.0306	0.0383	0.0073	2.39
	245	388.66	62.28	0.1114	-23.353	17.78	0.45967	0.62755	0.4449	0.378	3.4258	1378	601.6	0.175	0.0321	0.0364	0.00803	1.91
	250	438.38	59.94	0.0954	-21.203	16.655	0.46774	0.61917	0.5012	0.4583	3.9666	1267	597.6	0.16	0.0338	0.0344	0.00899	1.46
	255	492.61	57.26	0.0812	-18.844	15.206	0.4764	0.60993	0.5913	0.5911	4.8227	1145	591.5	0.145	0.036	0.0324	0.01035	1.04
	260	551.7	54.06	0.0681	-16.163	13.273	0.48605	0.59926	0.7594	0.8483	6.3925	1006	581.9	0.129	0.0387	0.0304	0.01245	0.65
	265	616.14	49.89	0.0554	-12.891	10.47	0.49764	0.58579	1.196	1.5406	10.302	833	564.9	0.112	0.0427	0.029	0.01639	0.31
	270	686.7	42.48	0.0406	-7.692	4.957	0.516	0.56285	5.636	8.4769	43.1571	573	515.1	0.089	0.0512	0.0333	0.03231	0.04

Knovel认知- Basic search-Tables Graphs-Data search-Equations-Unit Converter-PeriodicTable

- **问题：**
- 在日化领域中，开发性能良好的清洗剂是核心，而具有高表面张力同时粘度低的清洗剂是研发的方向之一。现假设需要找到表面张力（surface tension）15，25和30大于或等于mN/m，而粘度(dynamic viscosity)小于等于10mPa s的溶液.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electrical properties
electrochemical properties
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environmental characteristics
fiber properties
food and nutrition
geography
hazard-related properties
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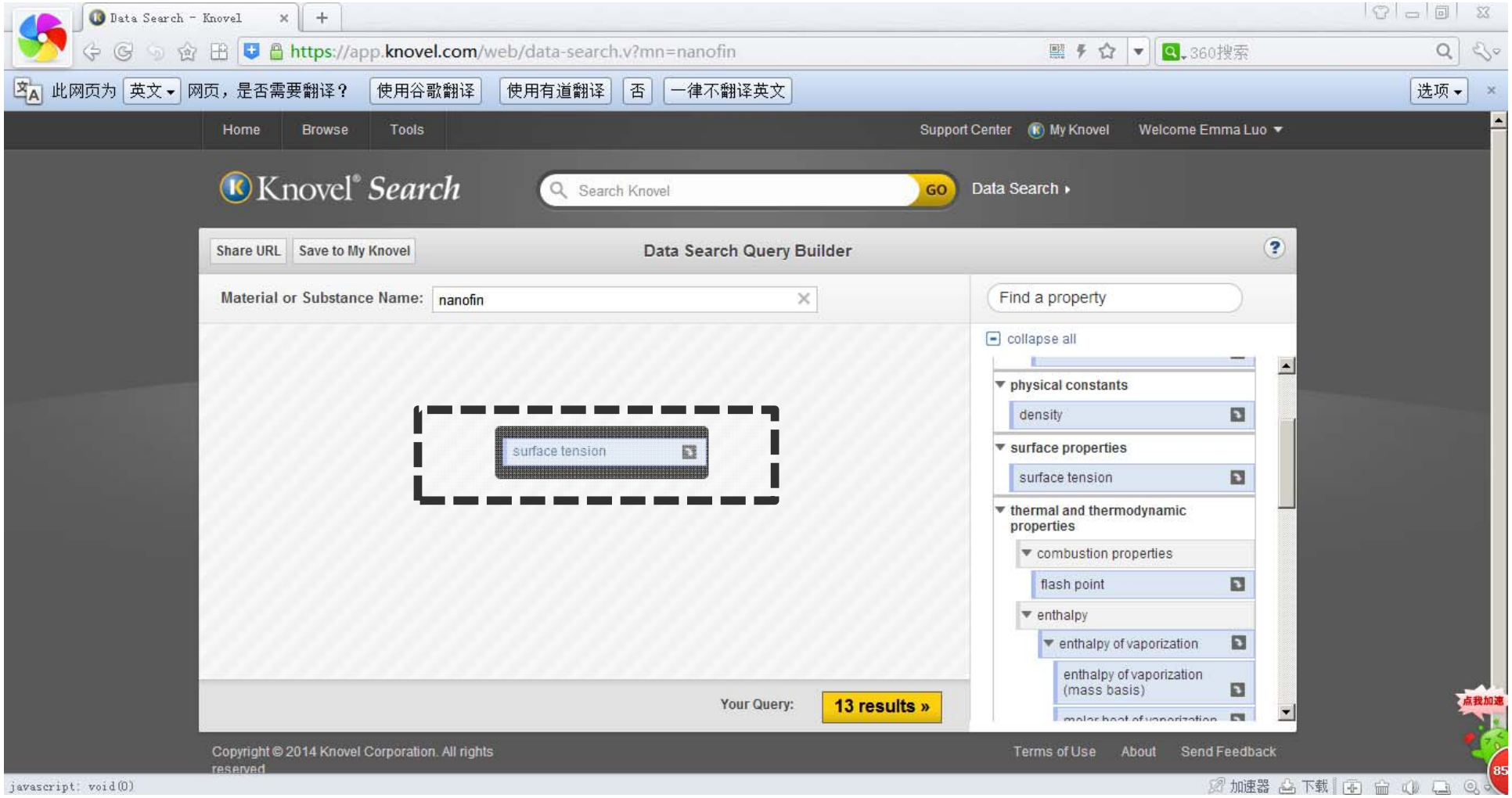
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surface properties
surface tension
thermal and thermodynamic properties
combustion properties
flash point
enthalpy
enthalpy of vaporization
enthalpy of vaporization (mass basis)
surface tension
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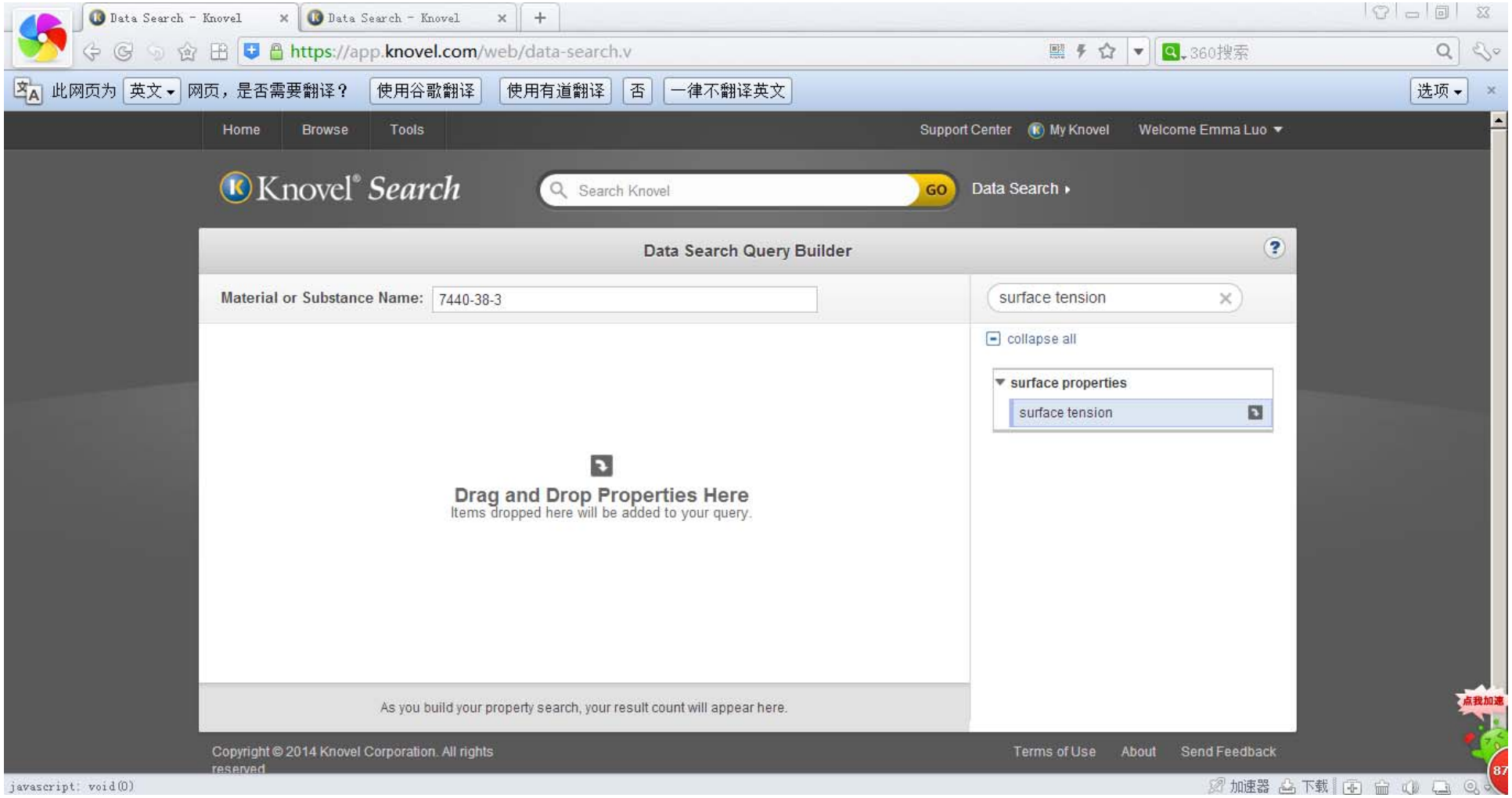
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surface properties
surface tension
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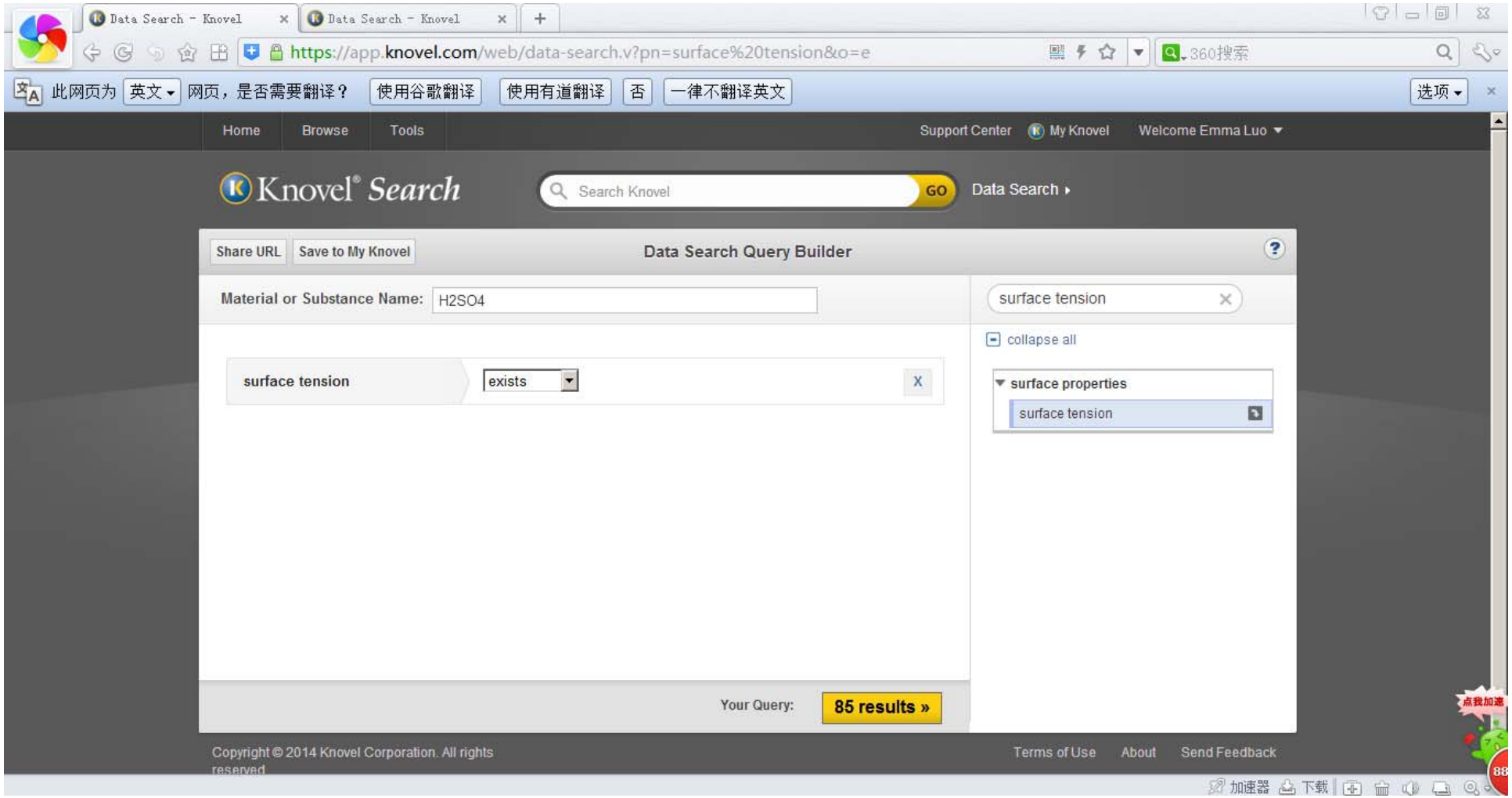
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X
surface properties
surface tension
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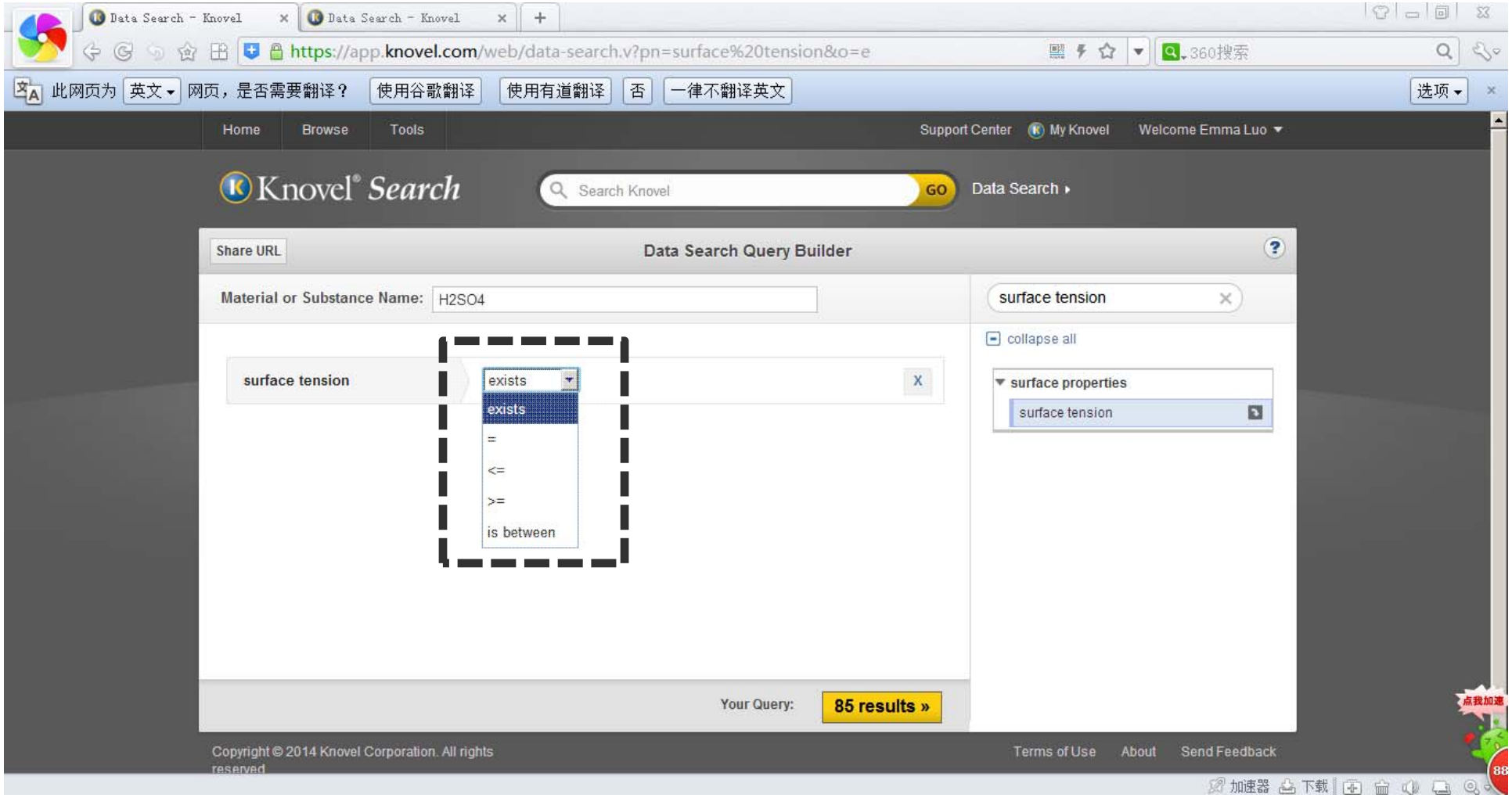
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<=
>=
is between
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surface properties
surface tension
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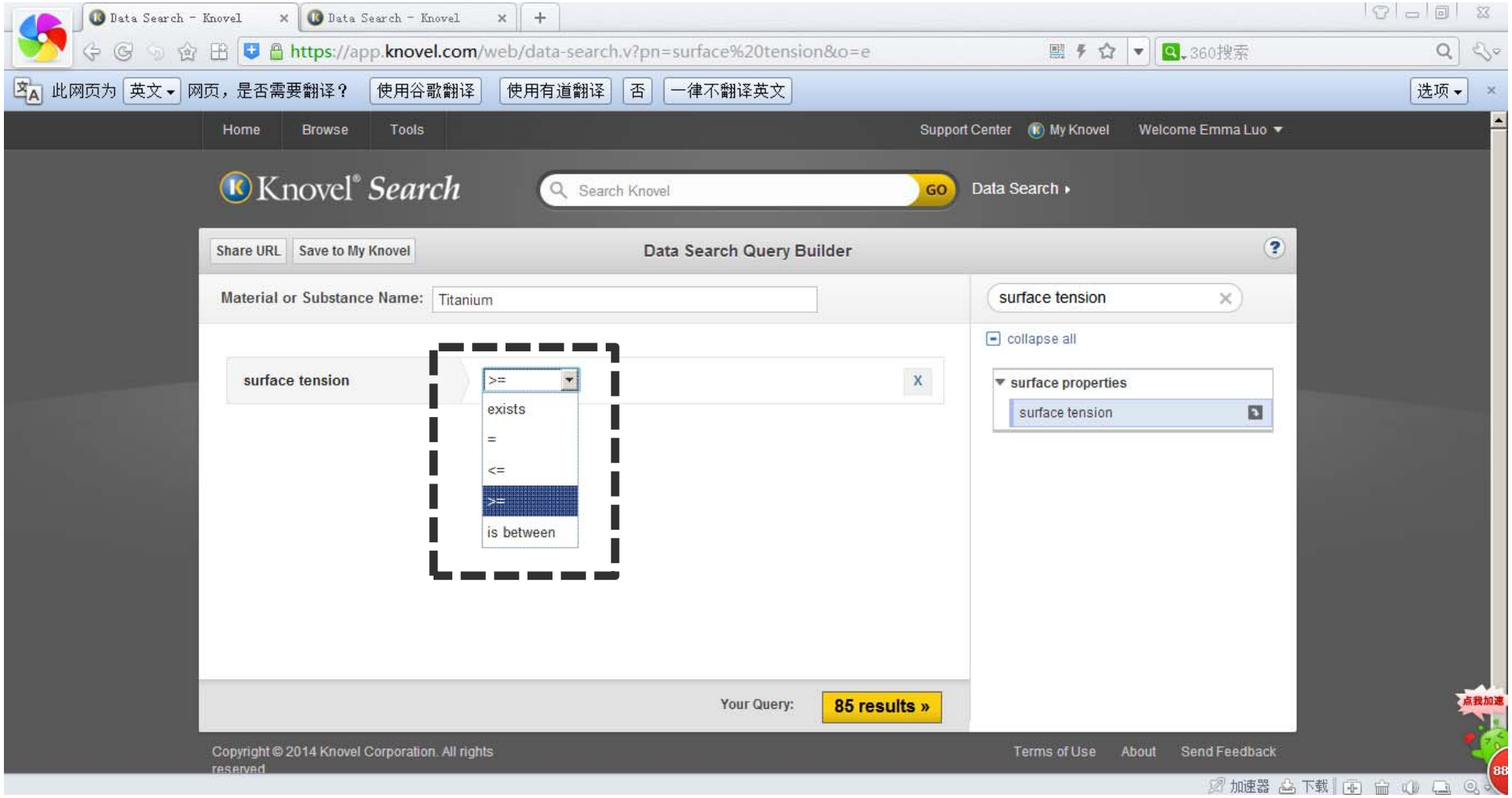
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>=
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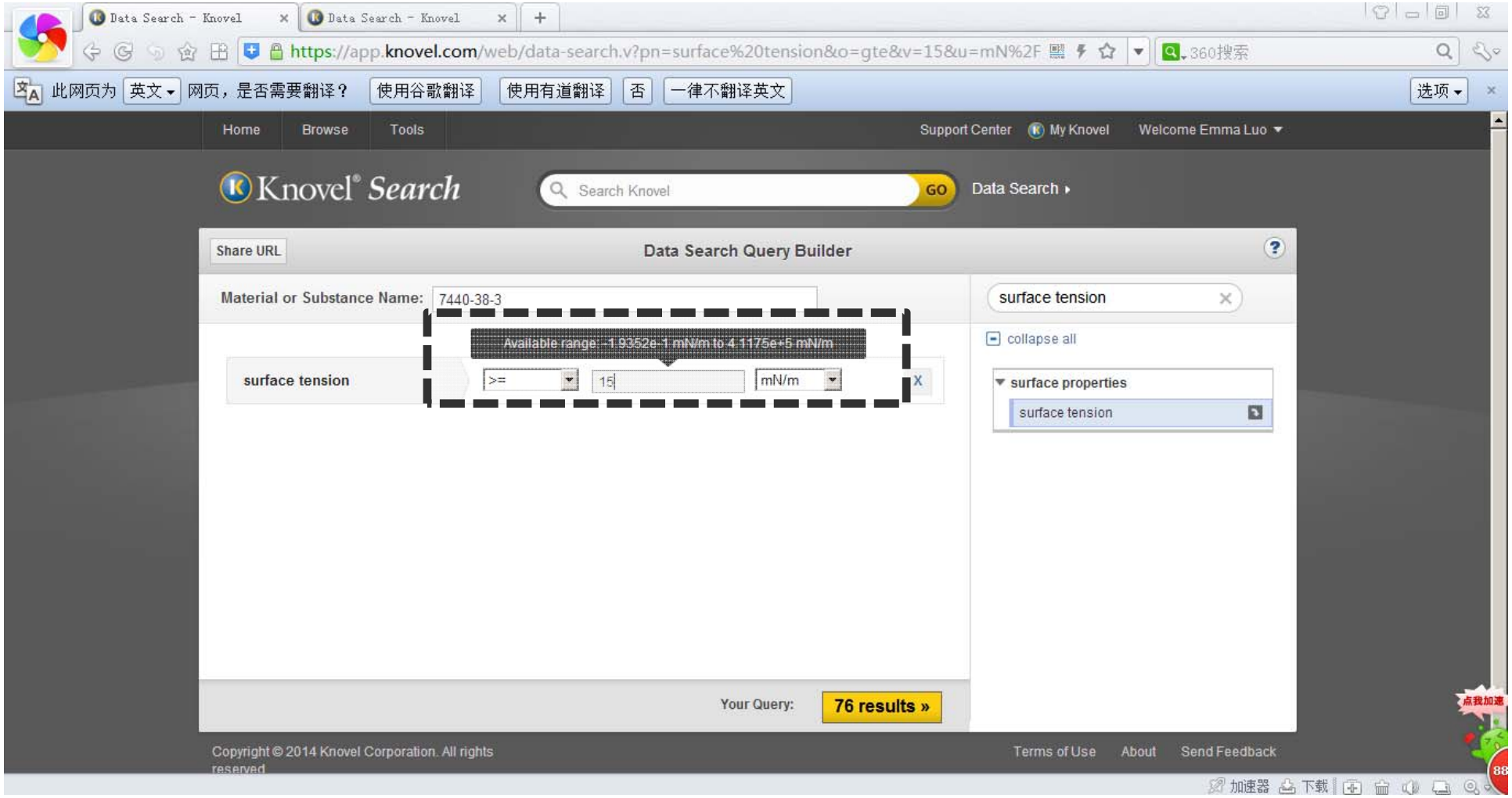
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7440-38-3
Available range: -1.9352e-1 mN/m to 4.1175e+5 mN/m
surface tension
>=
15
mN/m
X
surface tension
collapse all
surface properties
surface tension
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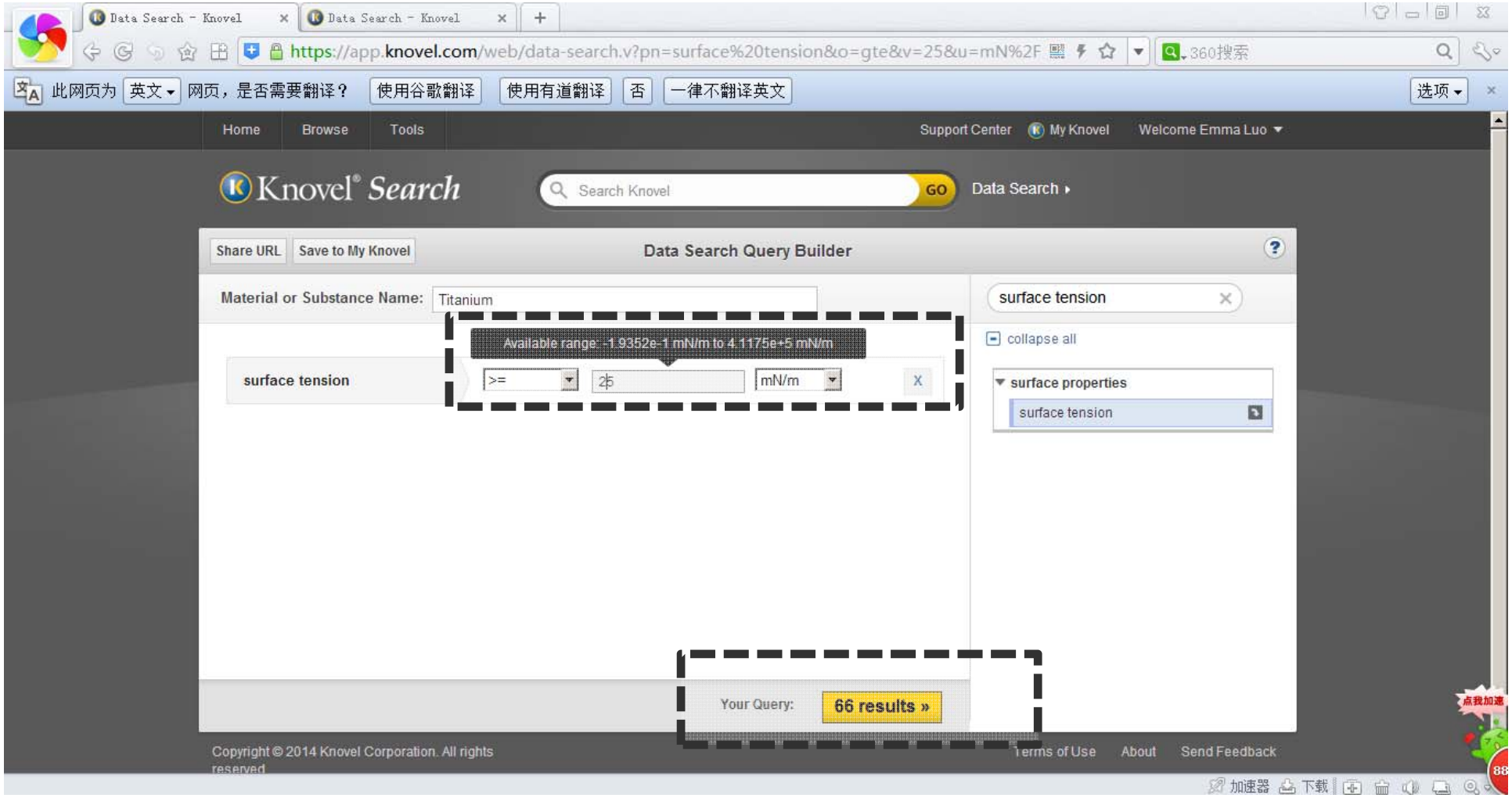
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Titanium
surface tension
Available range: -1.9352e-1 mN/m to 4.1175e+5 mN/m
surface tension
>=
25
mN/m
X
collapse all
surface properties
surface tension
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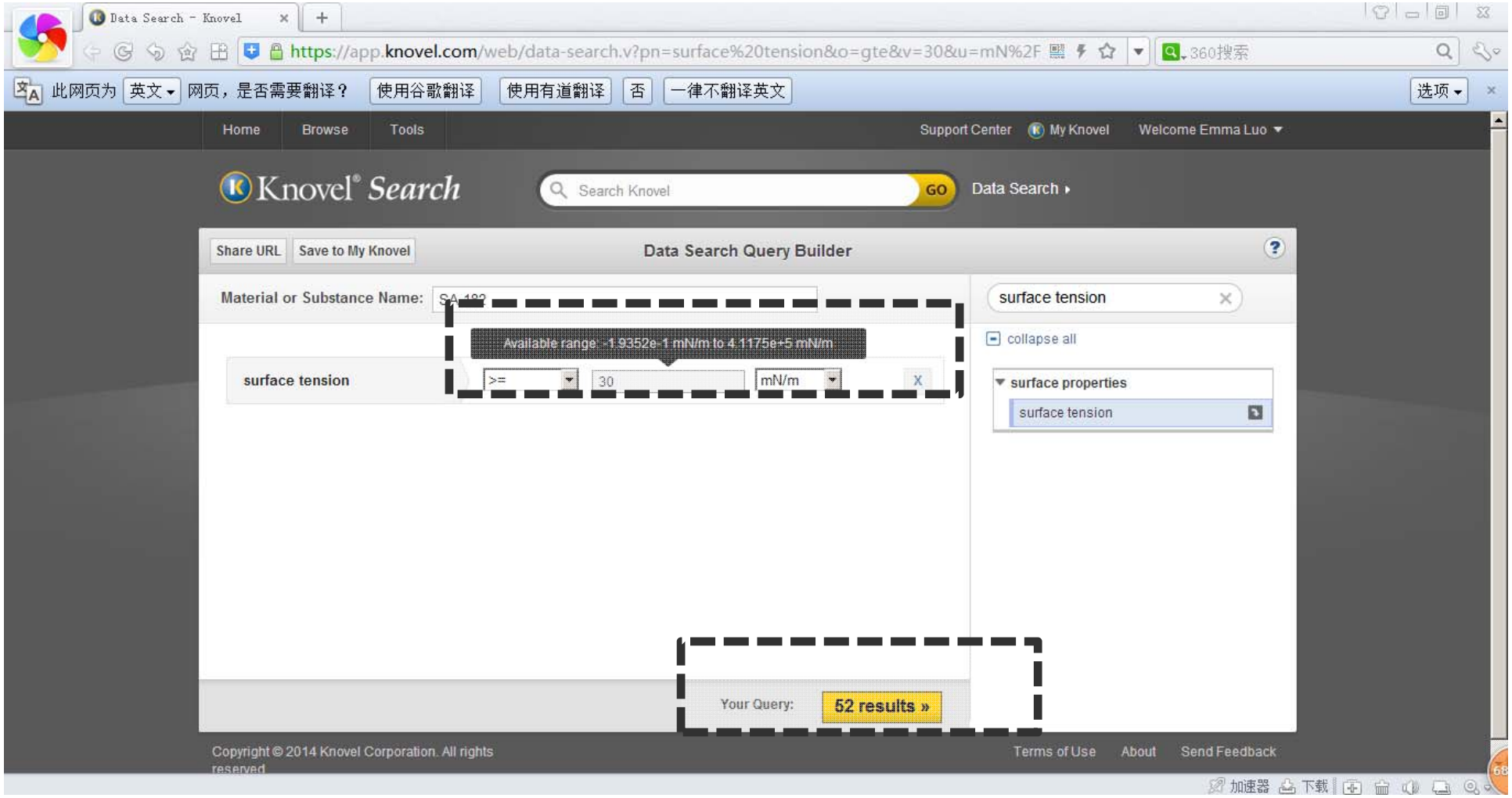
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Material or Substance Name:
surface tension
Available range: -1.9352e-1 mN/m to 4.1175e+5 mN/m
surface tension
>=
30
mN/m
X
collapse all
surface properties
surface tension
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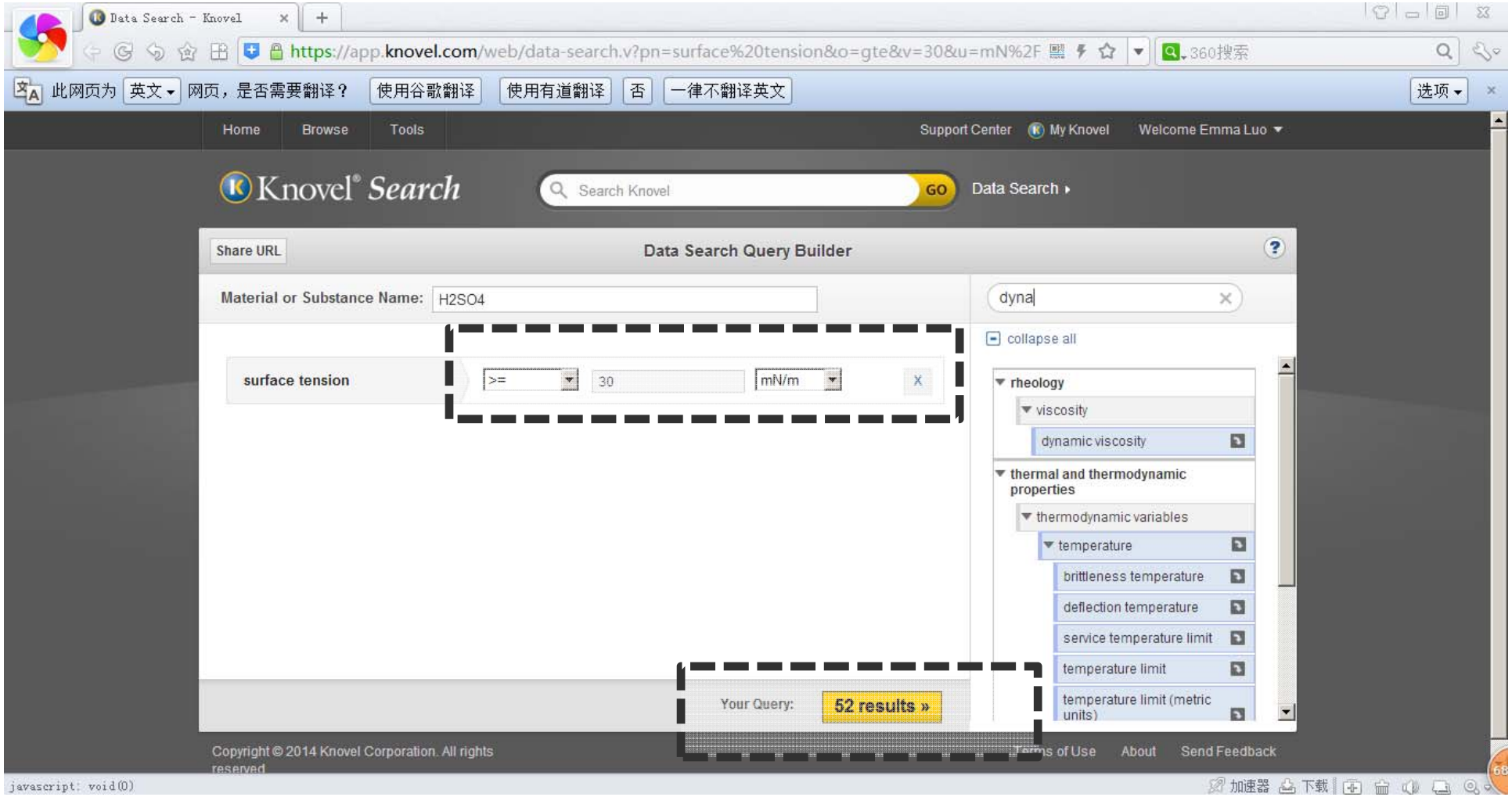
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surface tension
>=
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mN/m
X
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viscosity
dynamic viscosity
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Material or Substance Name: SA-182

surface tension >= 30 mN/m X

And Or Not

dynamic viscosity <= Pa s X

exists

=

<=

>=

is between

Please make sure your values are correct.

dyna

collapse all

rheology

viscosity

dynamic viscosity

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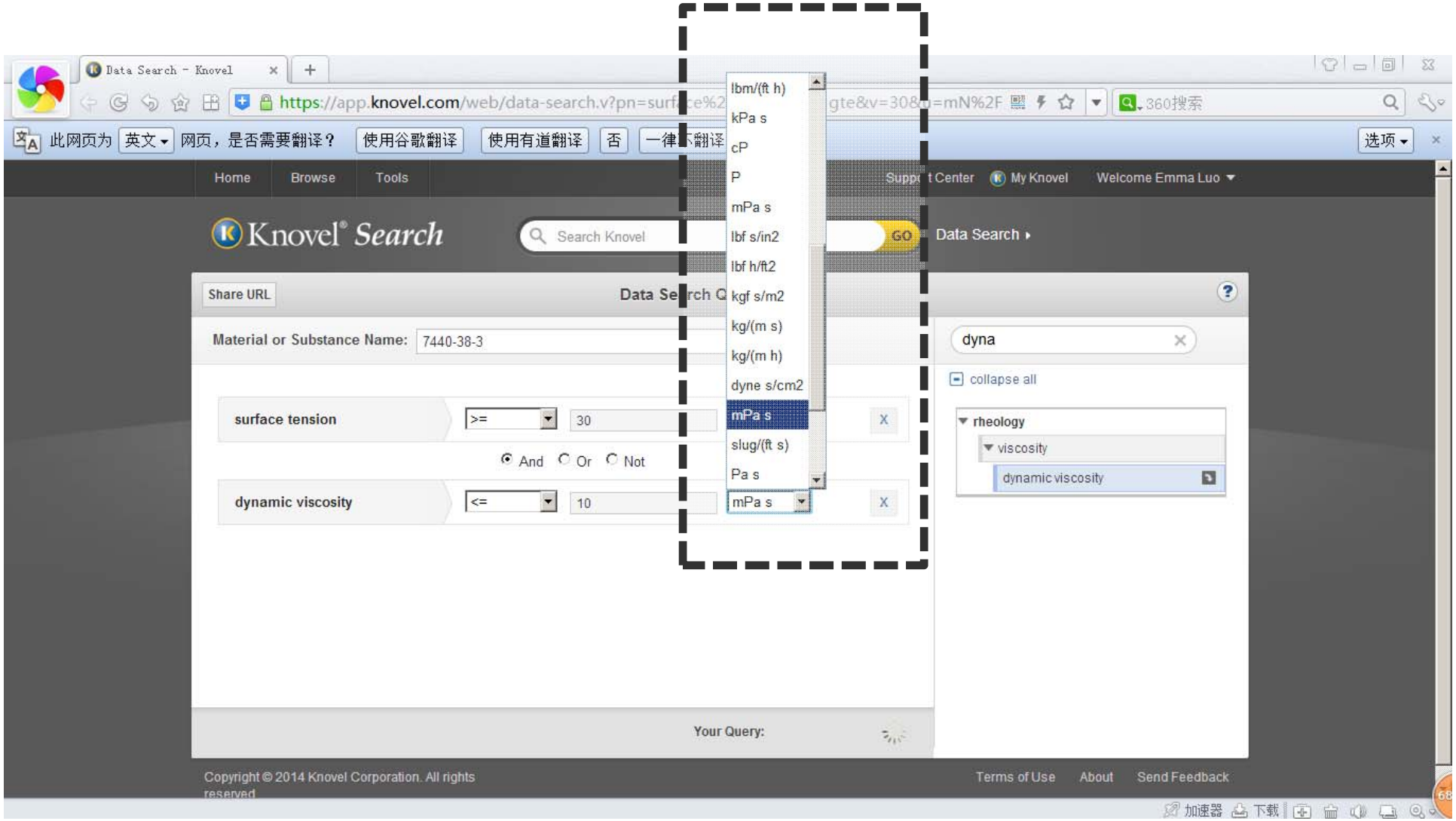
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Material or Substance Name: 7440-38-3
surface tension
>=
30
And
Or
Not
dynamic viscosity
<=
10
mPa s
lbm/(ft h)
kPa s
cP
P
mPa s
lbf s/in2
lbf h/ft2
kgf s/m2
kg/(m s)
kg/(m h)
dyne s/cm2
mPa s
slug/(ft s)
Pa s
mPa s
dyna
collapse all
rheology
viscosity
dynamic viscosity
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Material or Substance Name: H2SO4

surface tension	>=	30	mN/m
dynamic viscosity	<=	10	mPa s

And Or Not

Find a property

expand all

- chemical properties
- dimensional properties
- electrical properties
- electrochemical properties
- energy and power
- environmental characteristics
- fiber properties
- food and nutrition
- geography
- hazard-related properties
- magnetic properties
- material composition

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Material or Substance Name: H40270

surface tension >= 30 mN/m X

And Or Not

dynamic viscosity <= 10 mPa s X

Find a property

expand all

- chemical properties
- dimensional properties
- electrical properties
- electrochemical properties
- energy and power
- environmental characteristics
- fiber properties
- food and nutrition
- geography
- hazard-related properties
- magnetic properties
- material composition

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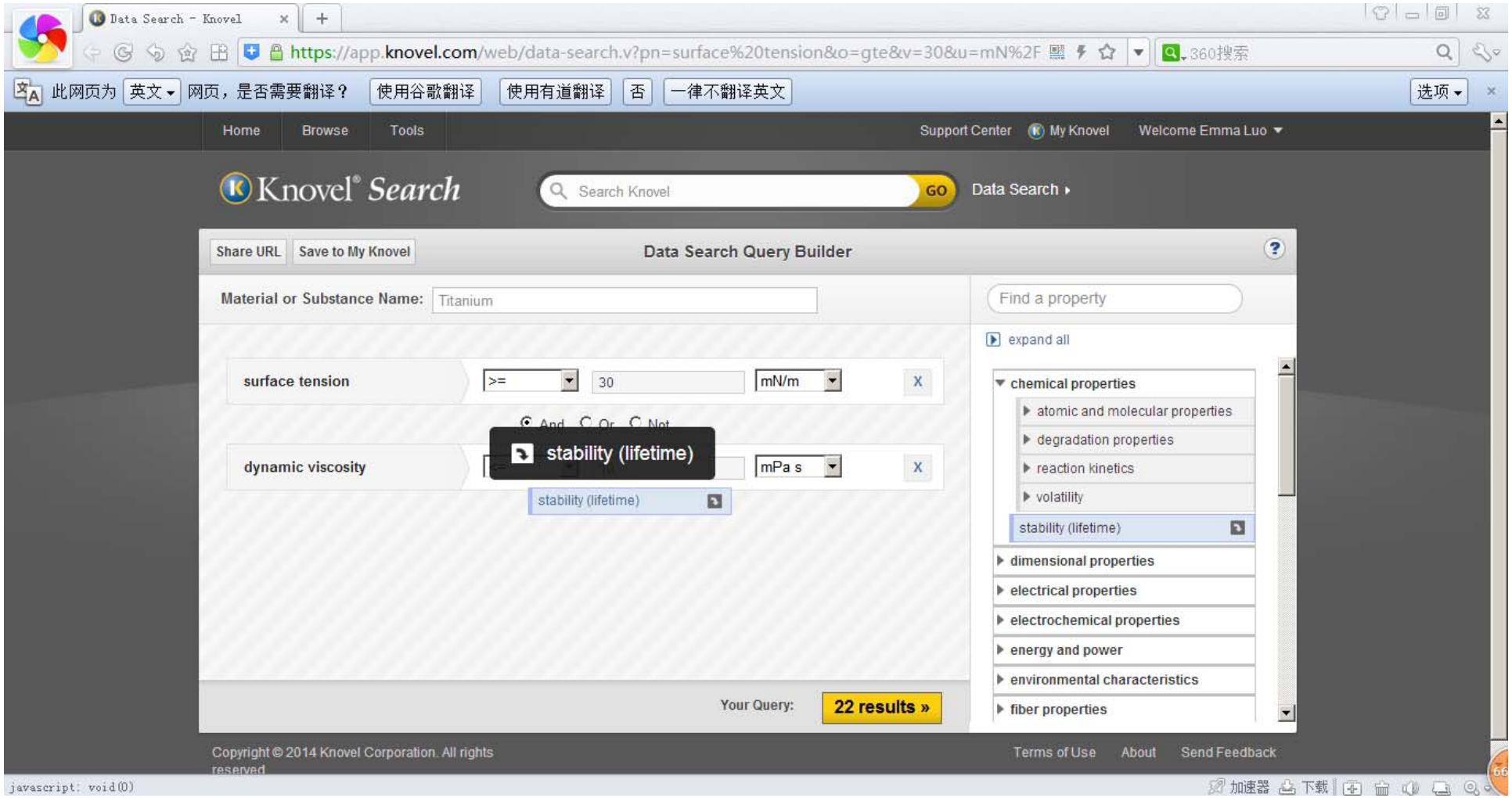
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Titanium
Find a property
expand all
surface tension
>=
30
mN/m
X
And
Or
Not
dynamic viscosity
mPa s
stability (lifetime)
chemical properties
atomic and molecular properties
degradation properties
reaction kinetics
volatility
stability (lifetime)
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electrochemical properties
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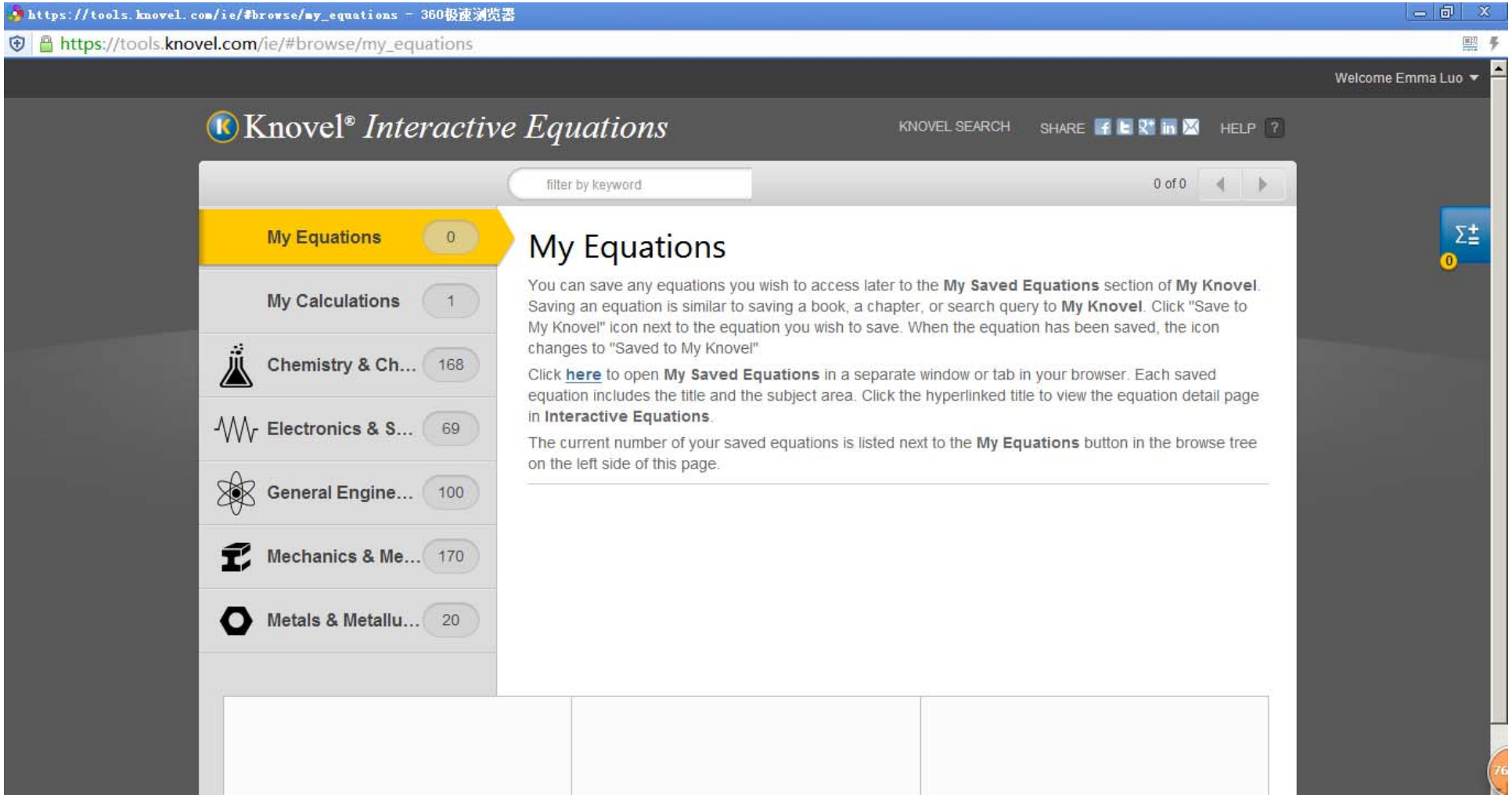

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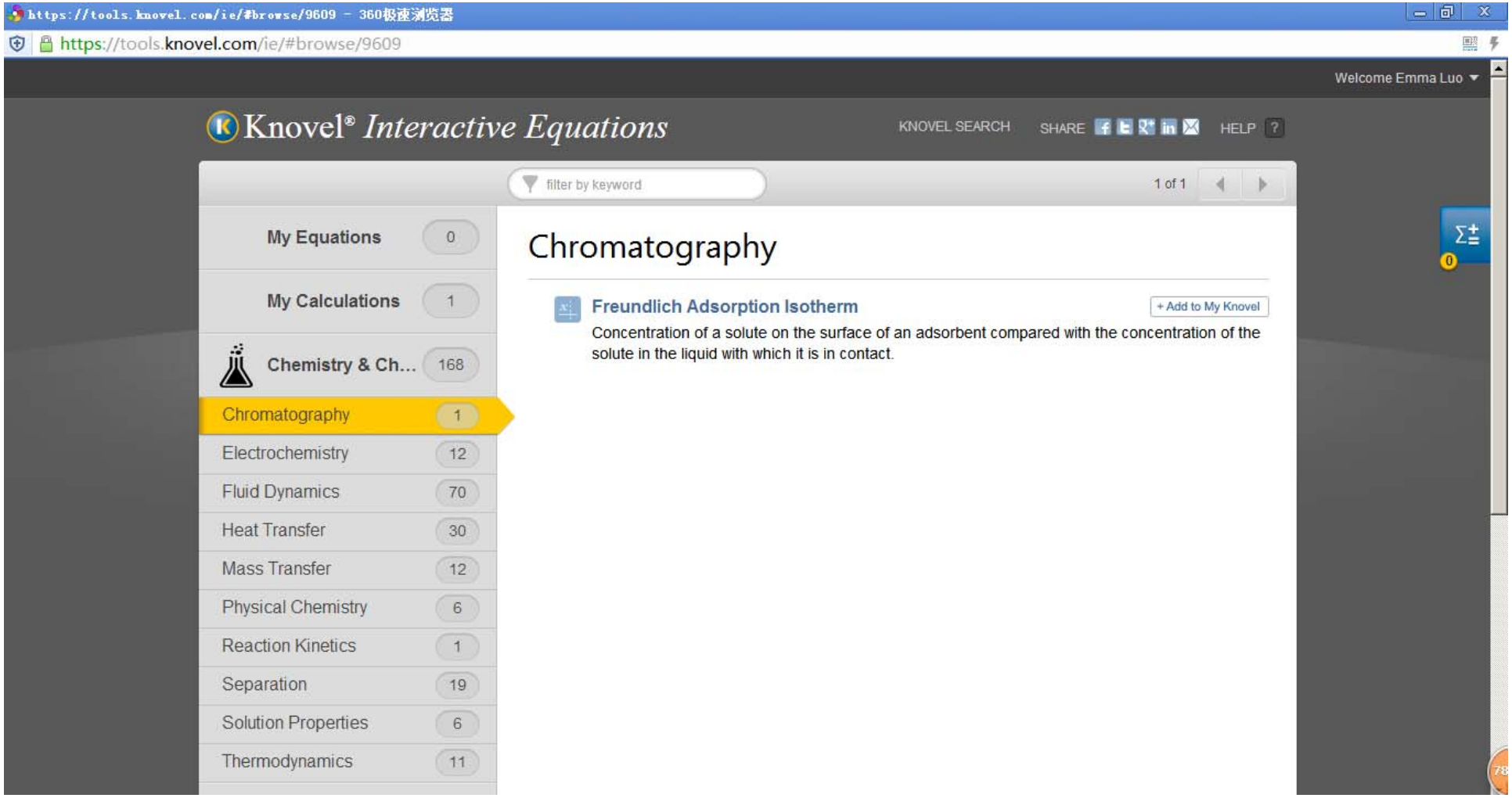

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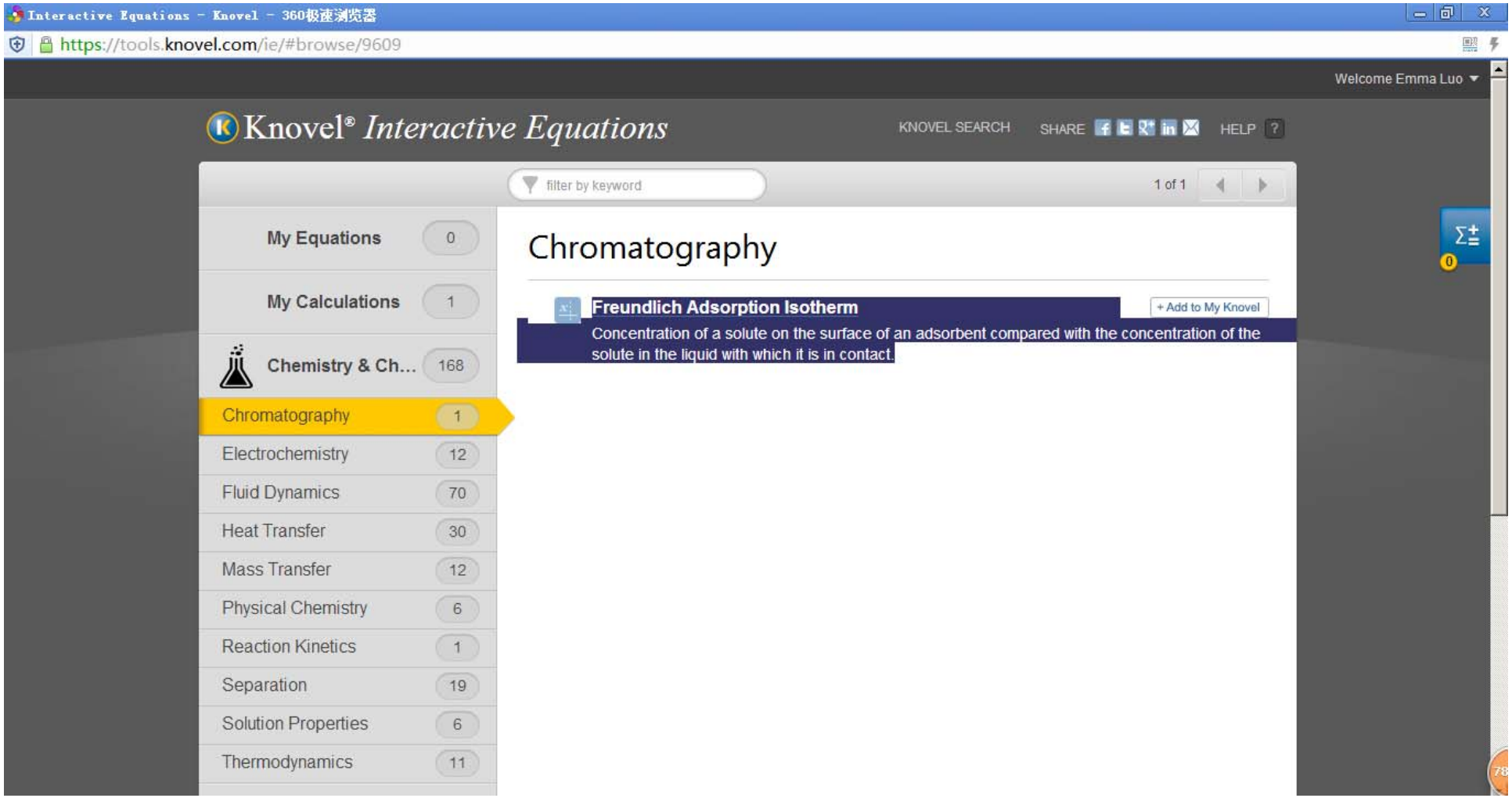

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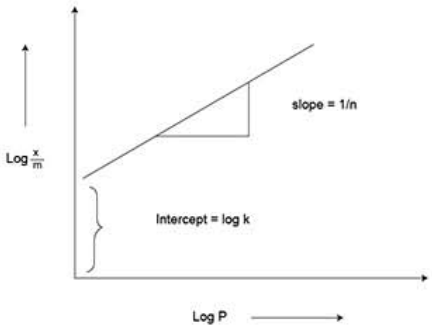
Freundlich Adsorption Isotherm

Concentration of a solute on the surface of an adsorbent compared with the concentration of the solute in the liquid with which it is in contact.



Contributed by: Vadim Lvovich

Citations: Handbook of Environmental Engineering Calculations (2nd Edition), Lee, C. C.; Lin, Shun Dar © 2007 McGraw-Hill, p. 1.727

Equation

open

$$x := m \cdot K \cdot P^{\frac{1}{n}}$$

x is mass of adsorbate, kg

K is constant for given adsorbant/adsobent, unitless

n is constant for given adsorbant/adsobent, unitless

m is mass of adsorbent, kg

P or c is equilibrium pressure of adsorbate, Pa or mol/m^3

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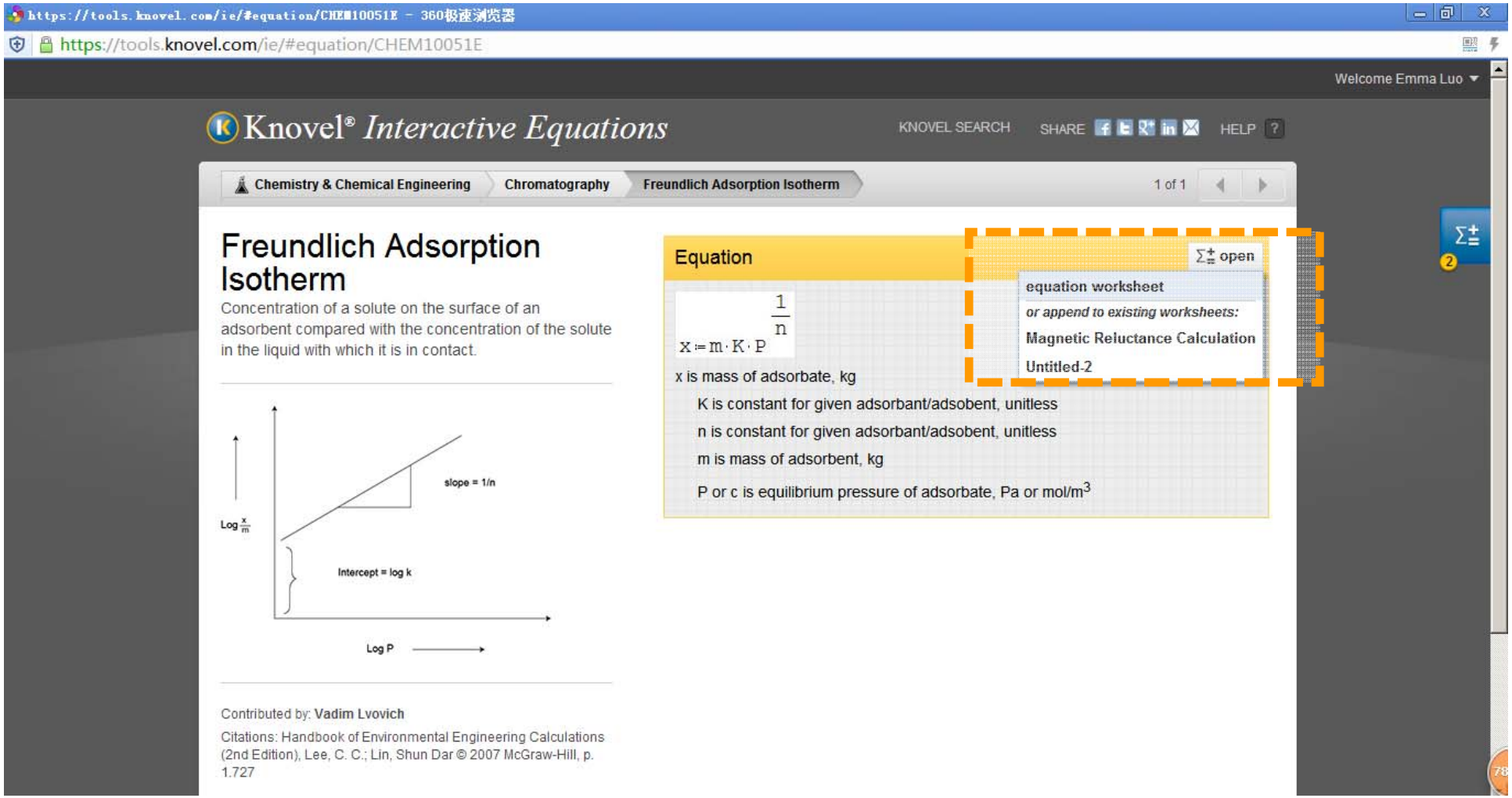

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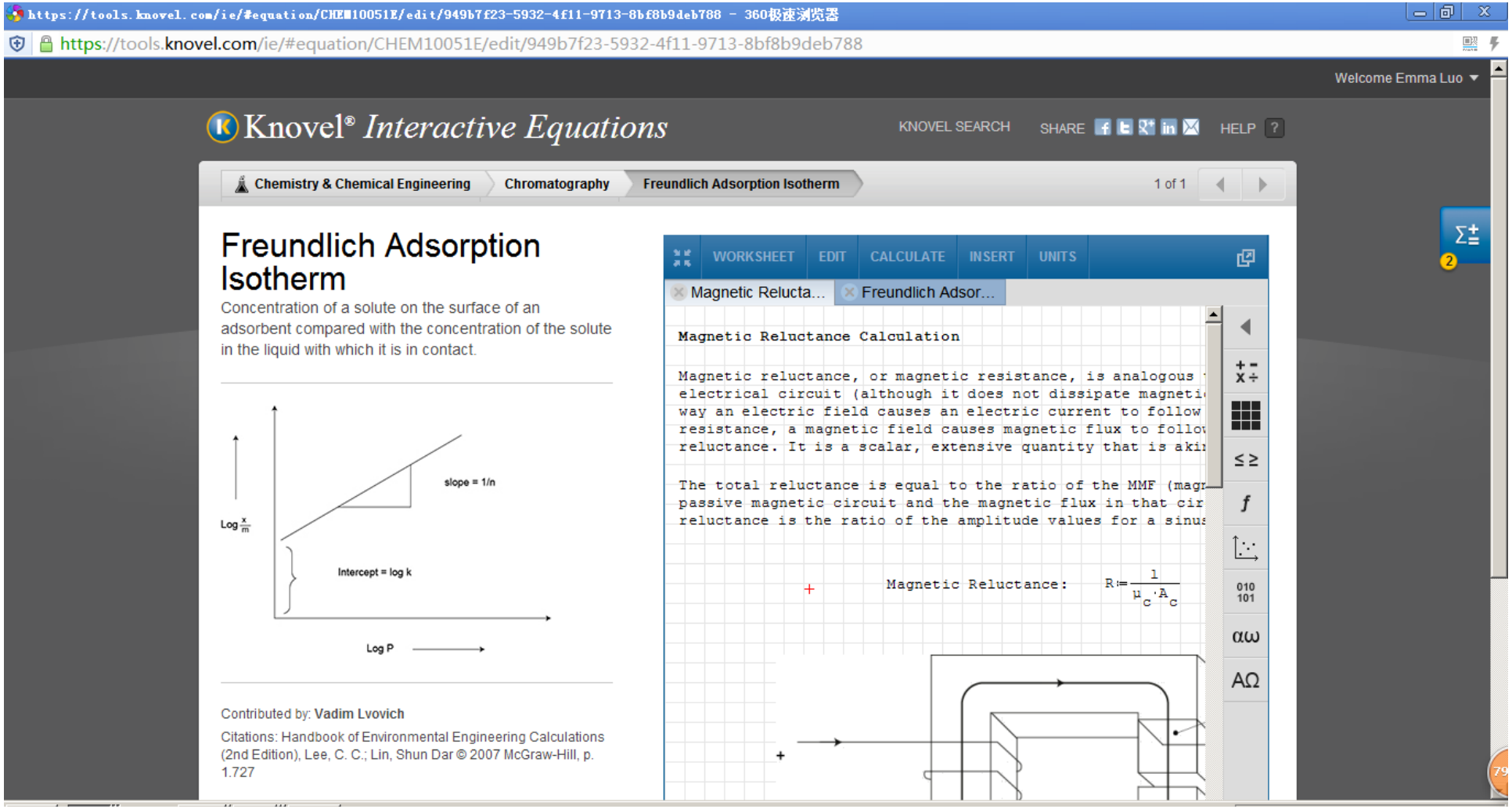

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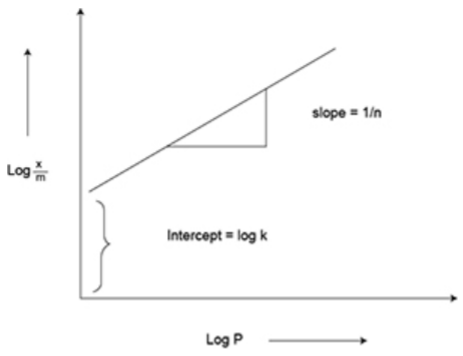
Concentration of a solute on the surface of an adsorbent compared with the concentration of the solute in the liquid with which it is in contact.



Contributed by: **Vadim Lvovich**

Citations: Handbook of Environmental Engineering Calculations (2nd Edition), Lee, C. C.; Lin, Shun Dar © 2007 McGraw-Hill, p. 1.727

equilibrium pressure (or concentration) of adsorbate P

constant for given adsorbant/adsobent K

constant for given adsorbant/adsobent n

Calculation

$m := 1 \cdot 10^{2}\ kg$

$n := 100$

$P := 1 \cdot 10^{6}$

$K := 0.0024$

$x := m \cdot K \cdot P^{\frac{1}{n}}$

$x = 0.2756\ kg$

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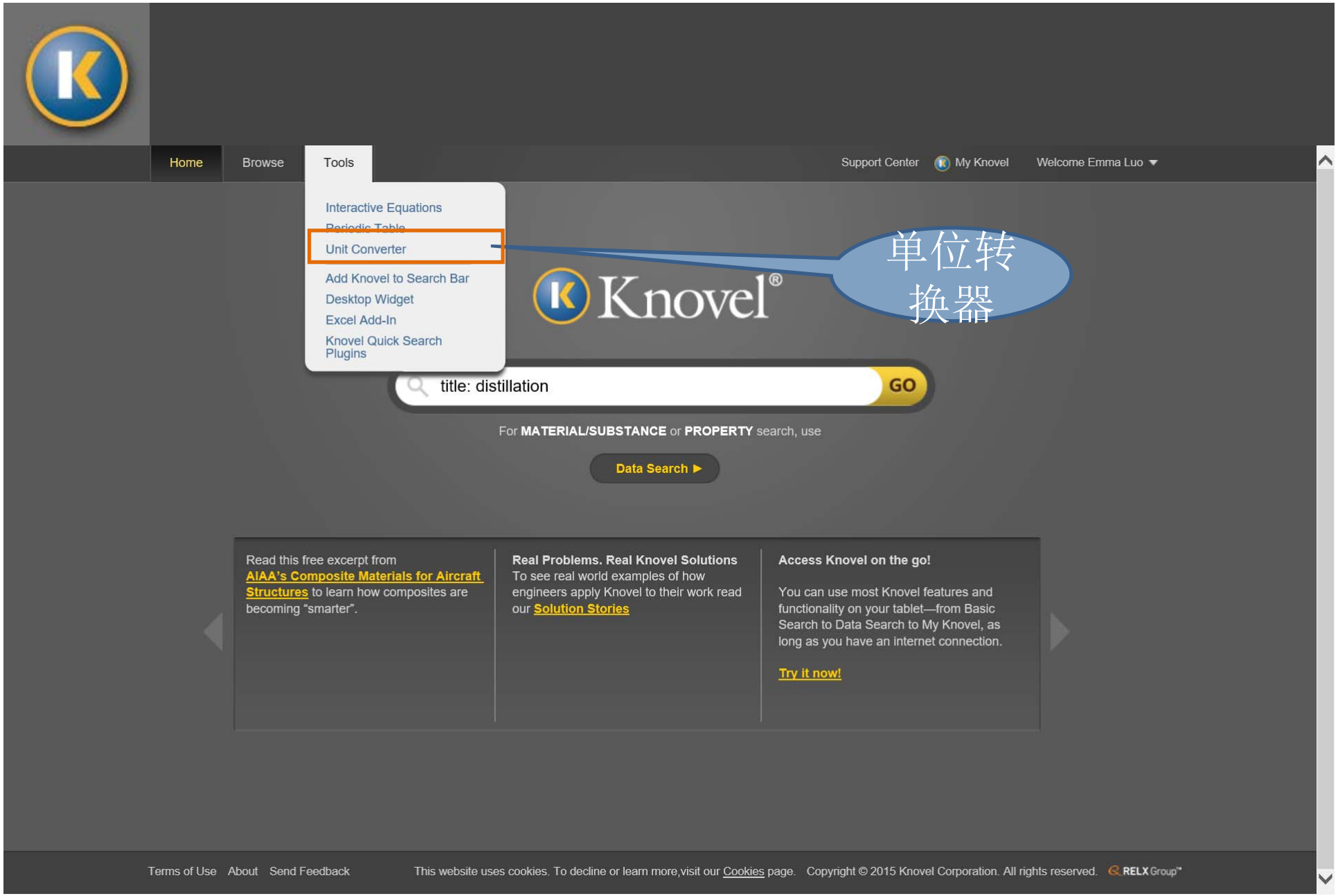

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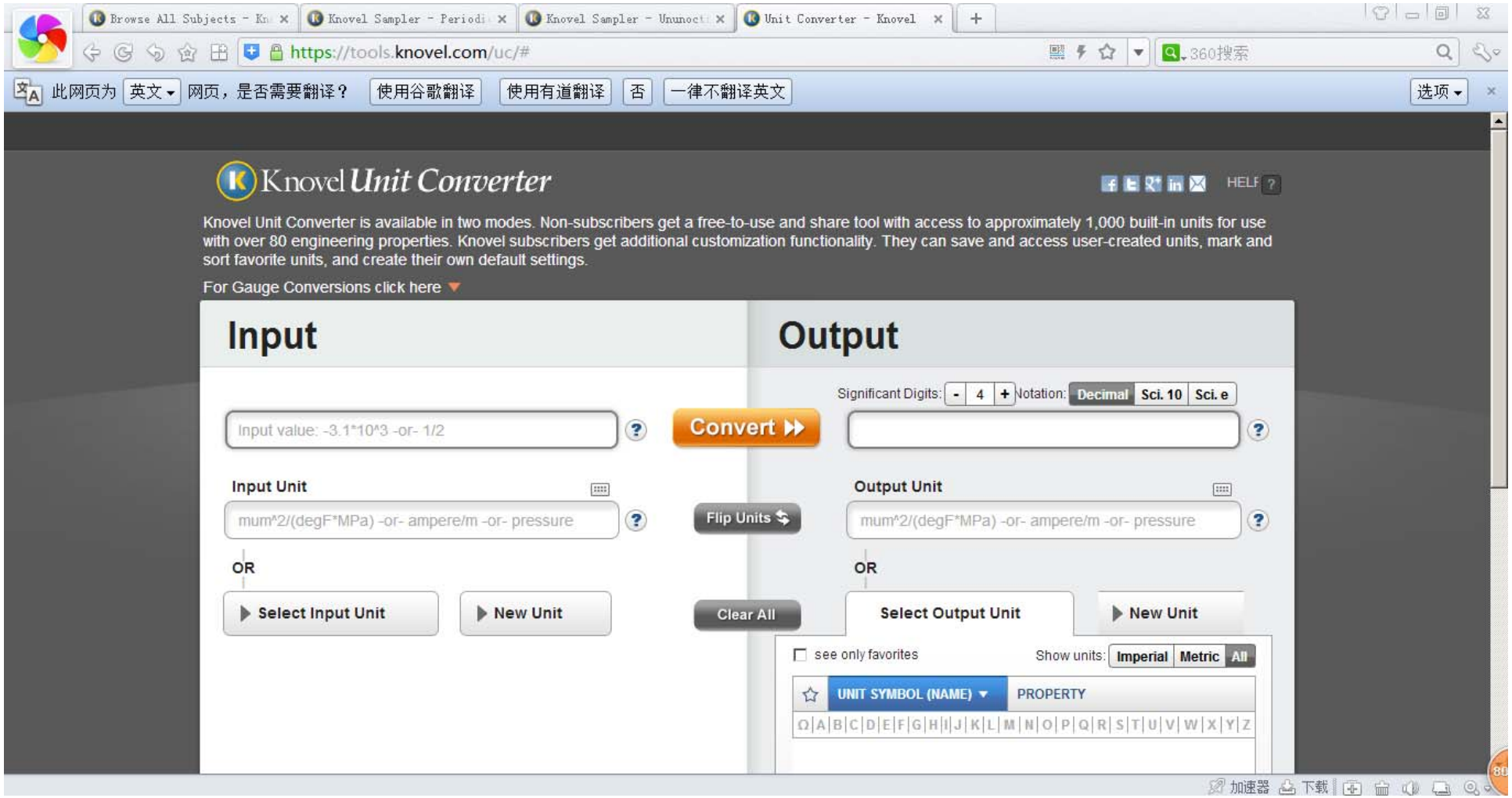
问题：

在理论研究和工程计算中，经常需要进行单位直接的换算，其中部分单位是不常见或生僻的单位，KNOVEL基本覆盖了绝大多数的非常规单位，并在线实现换算。

请通过KNOVEL，将 760 mm Hg （毫米汞柱）换算为atm（标准大气压）；



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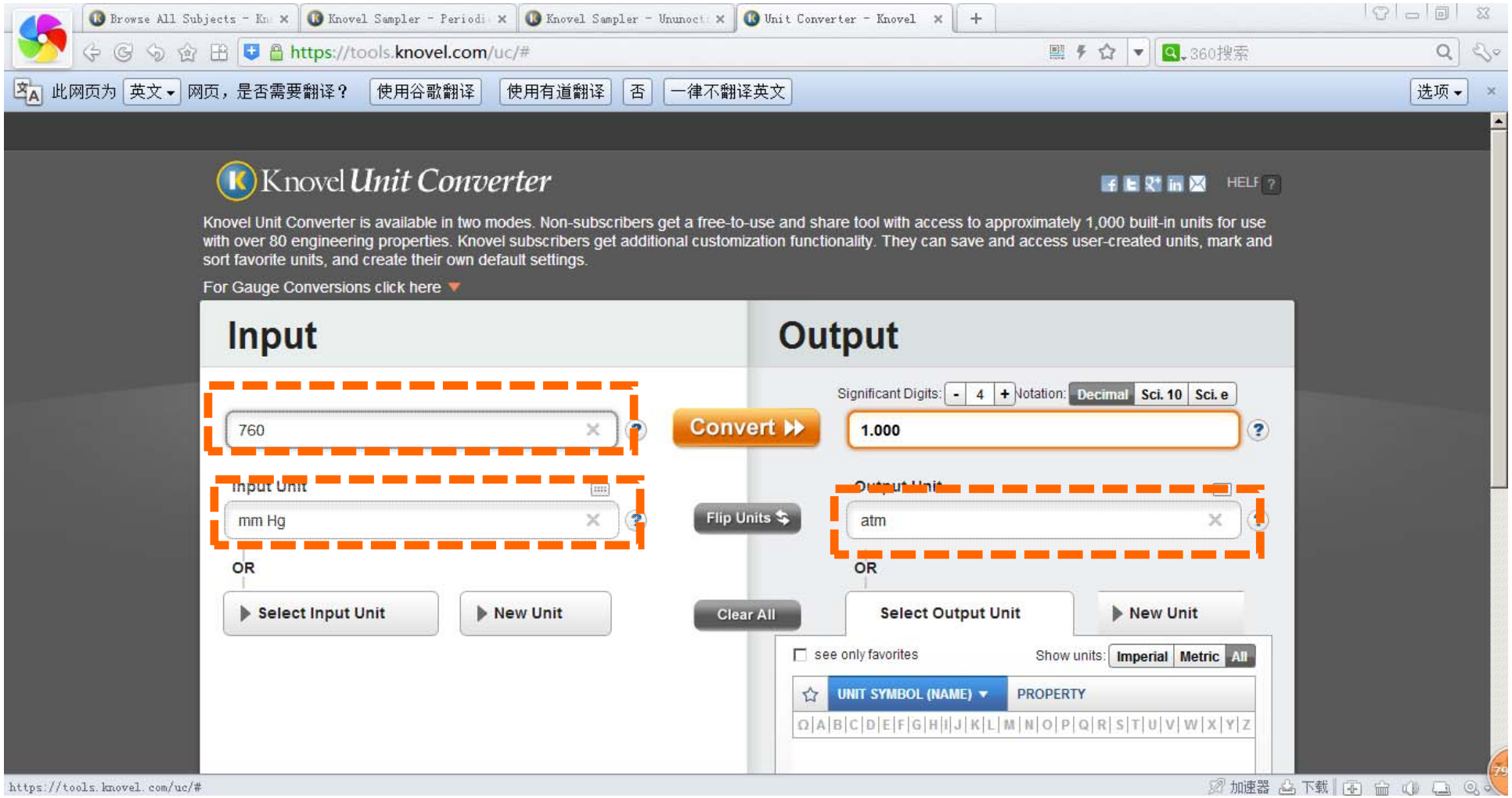

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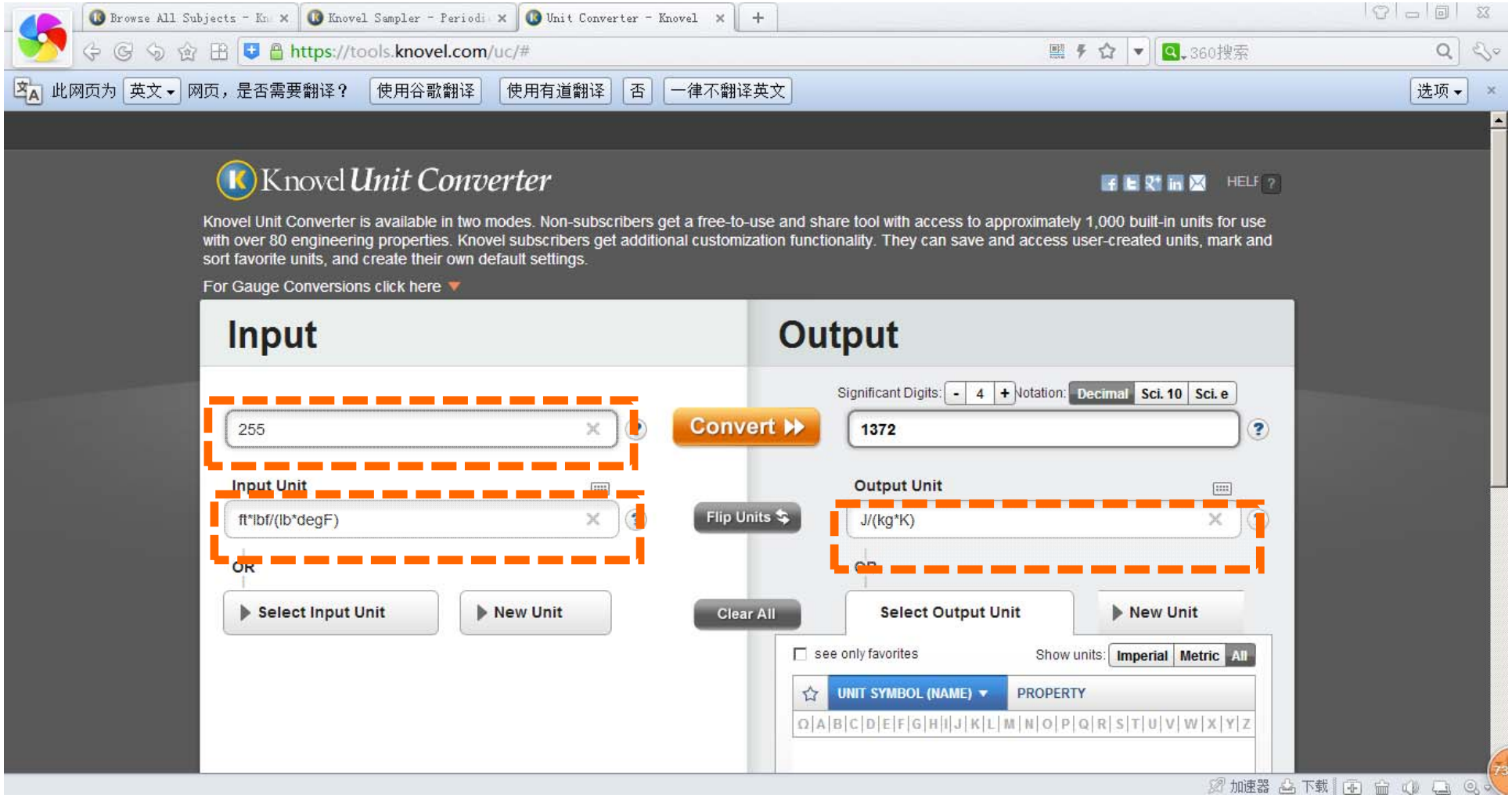

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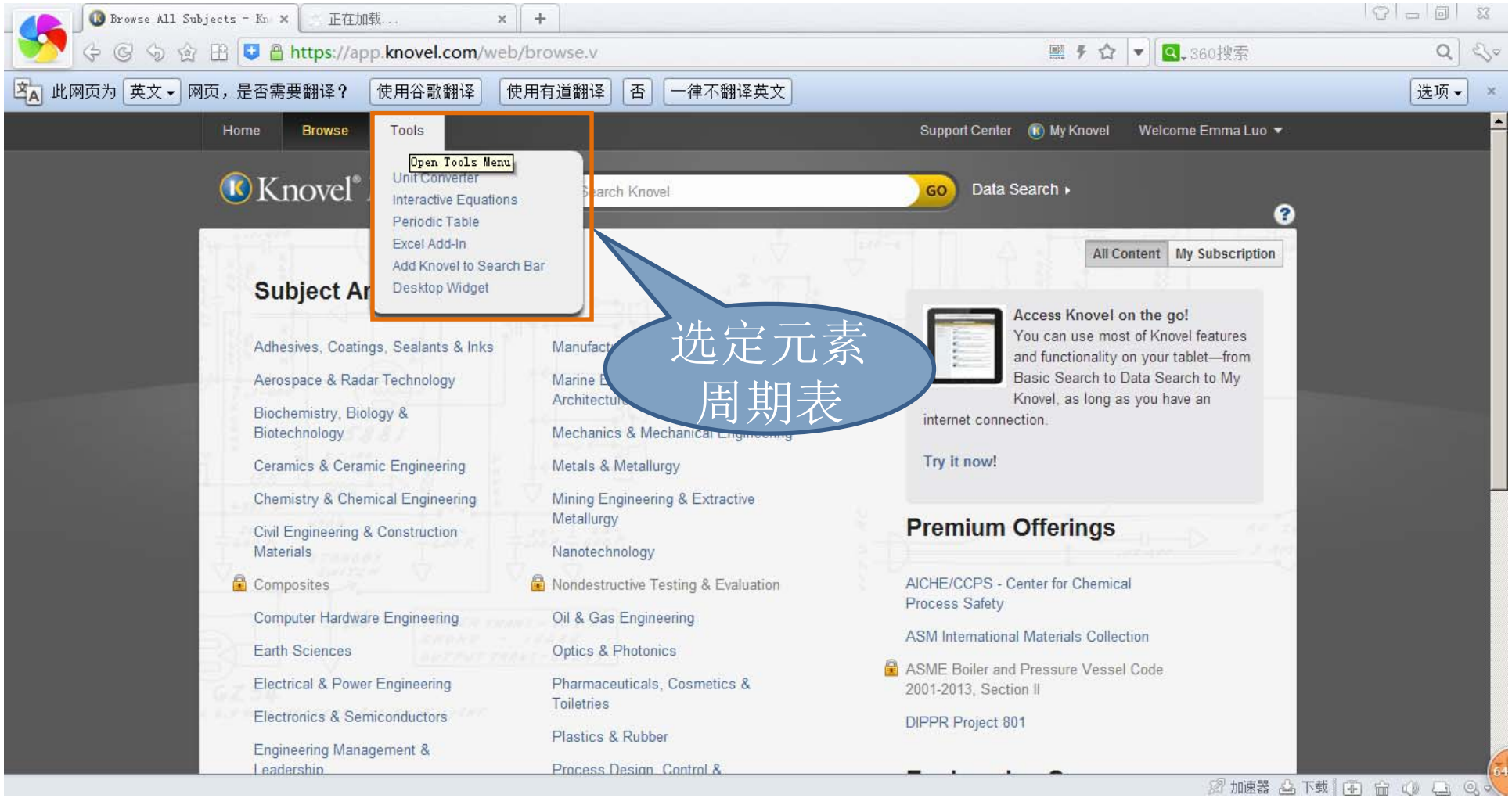
问题：

元素周期表是理论物理化学和材料科学等常用的工具，发现新元素和认识元素的特性在日常研究中十分必要。

请通过KNOVEL，（1）将原子量最大的元素找出来；（2）在超导研究中有大量关于锶元素的研究，请查找其在元素周期表中的位置并了解其被发现过程。



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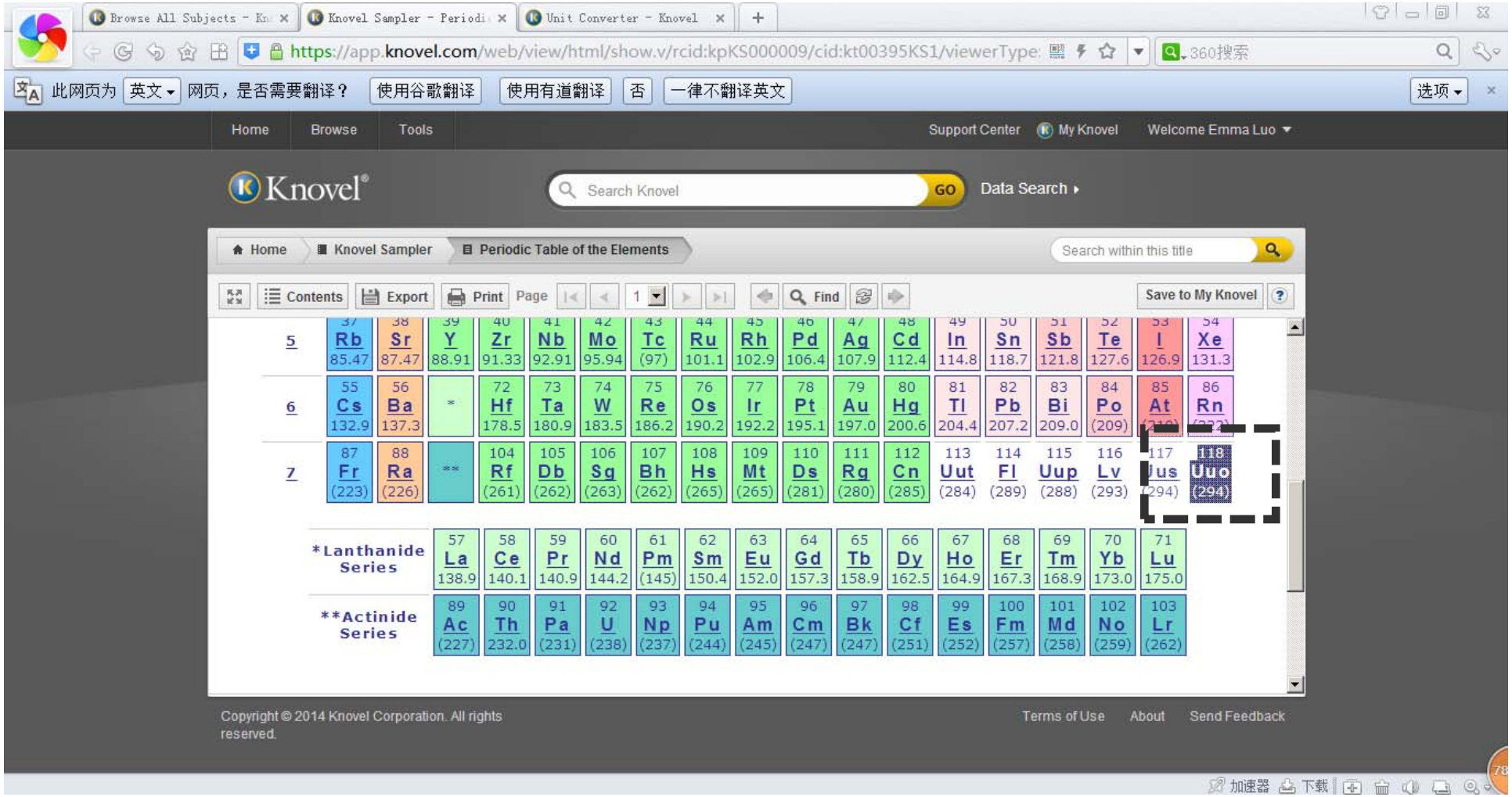

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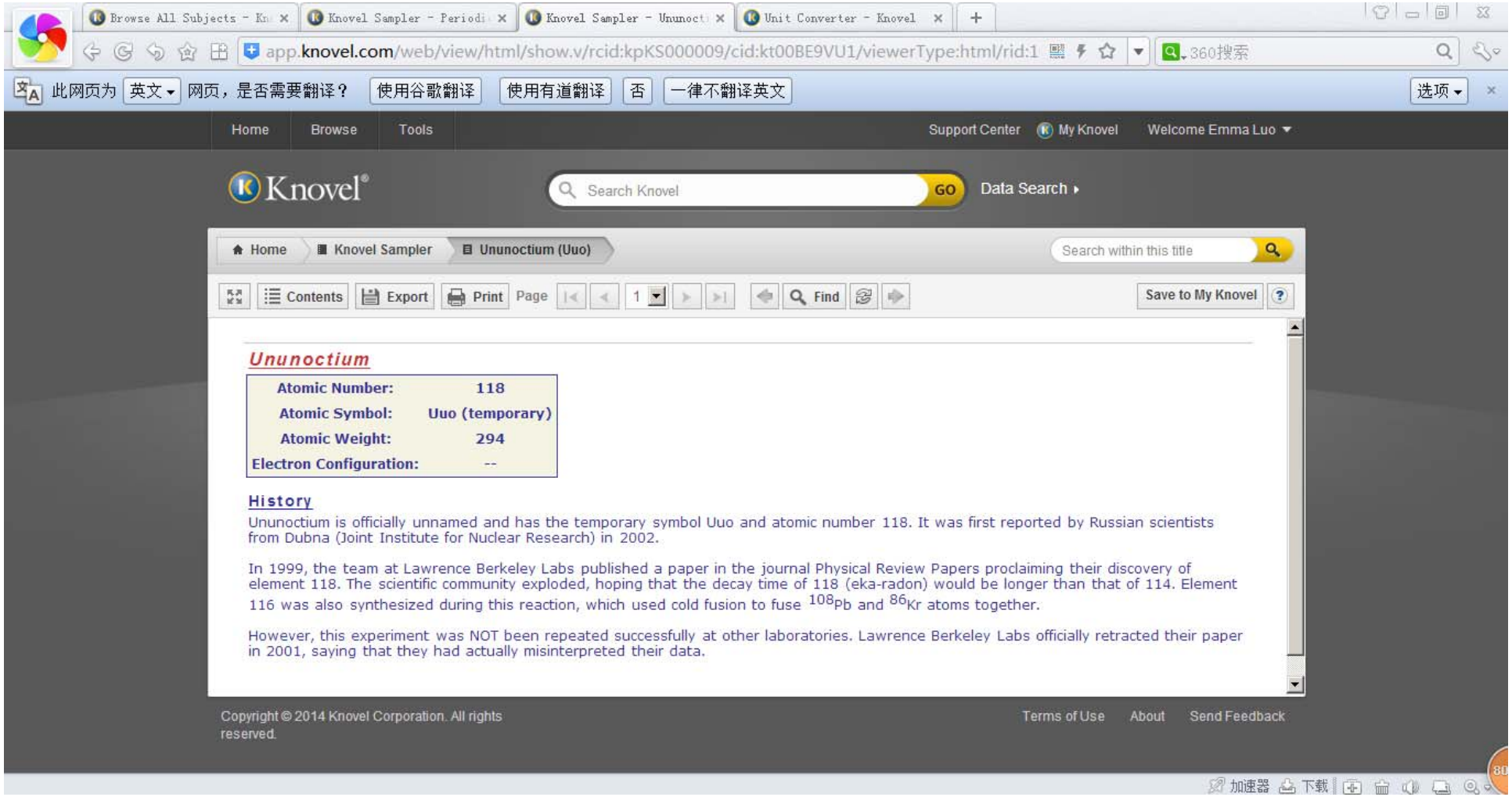

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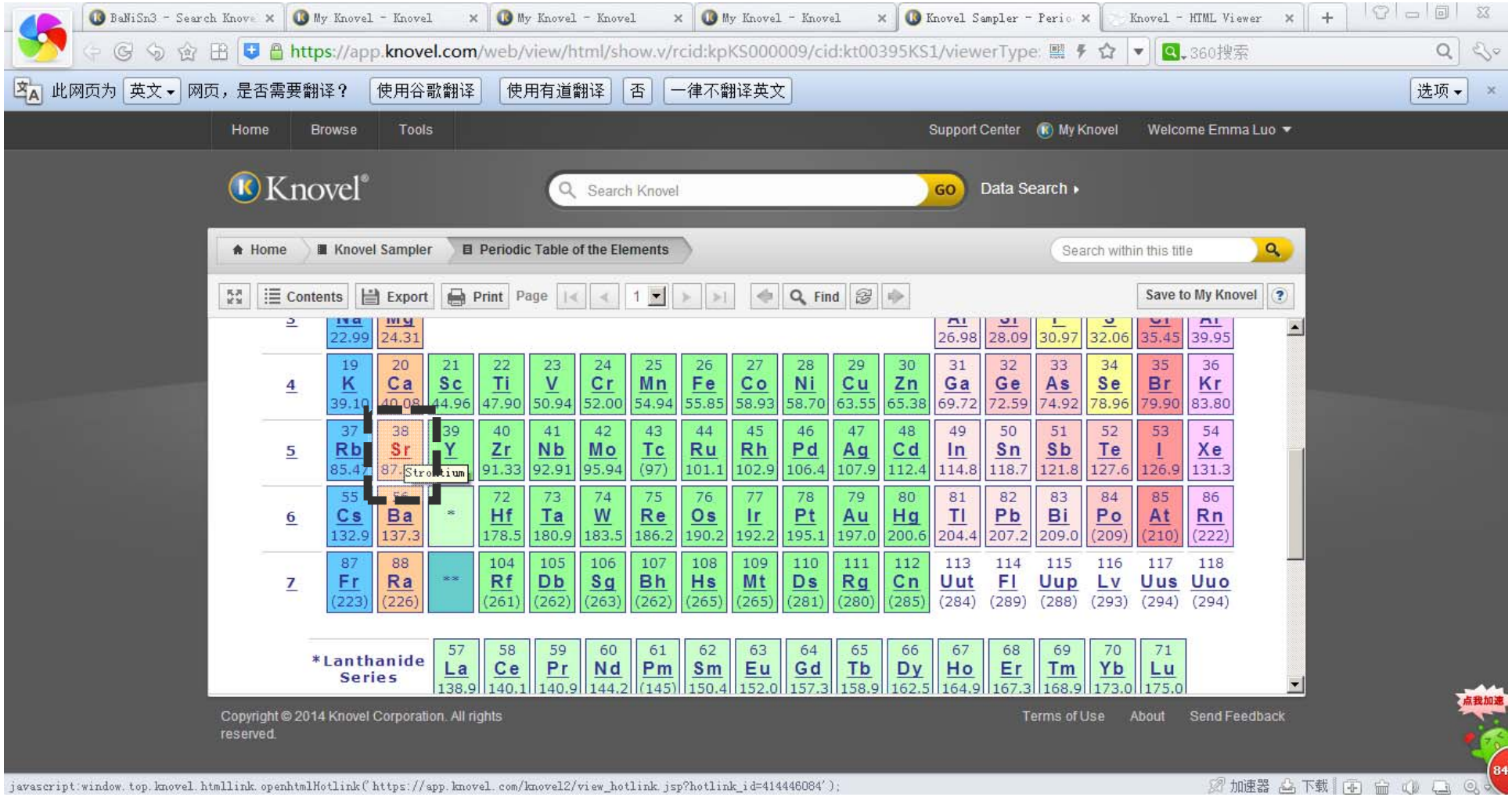

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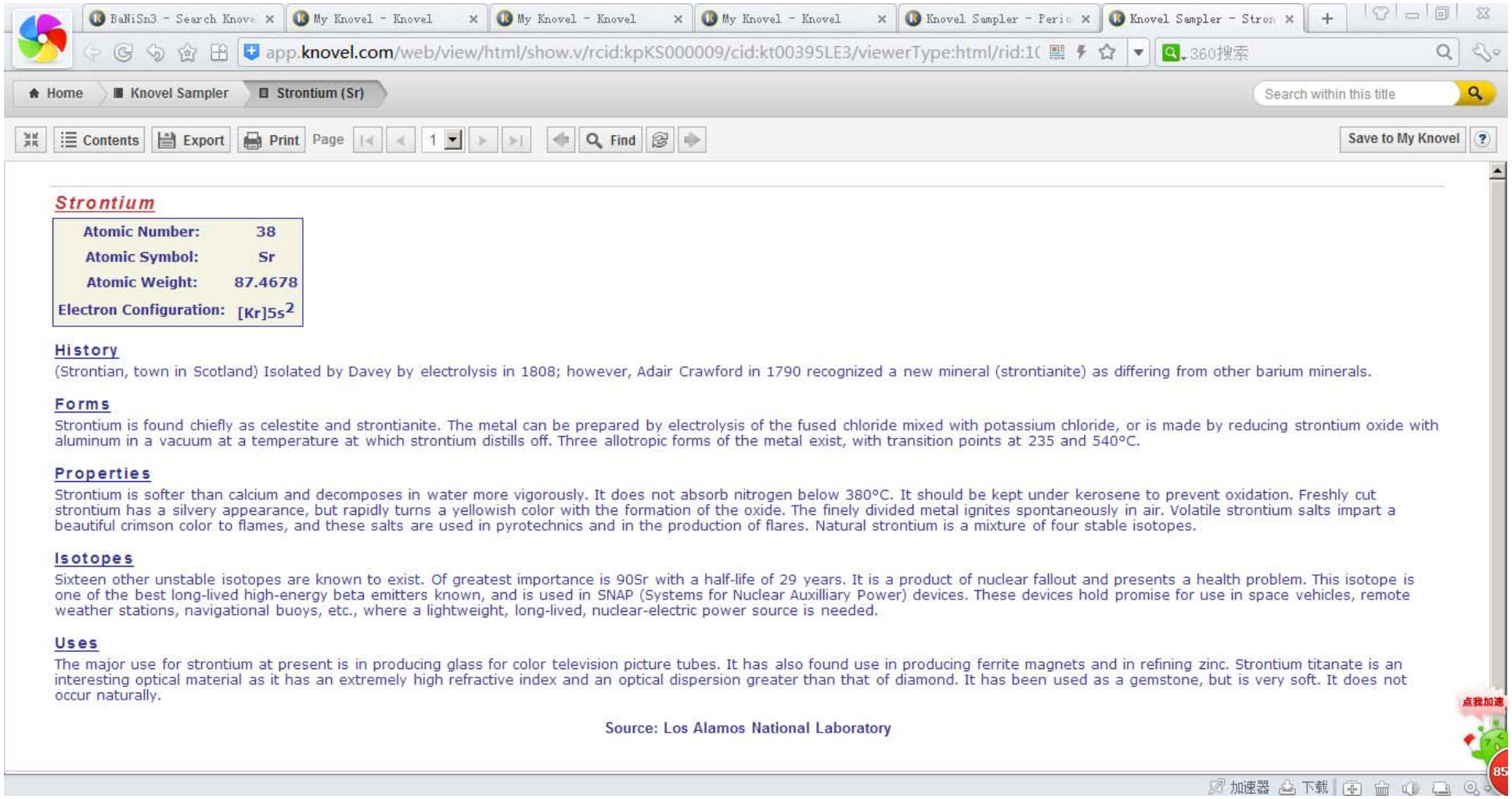

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Strontium

Atomic Number:	38
Atomic Symbol:	Sr
Atomic Weight:	87.4678
Electron Configuration:	$[Kr]5s^2$

History

(Strontian, town in Scotland) Isolated by Davey by electrolysis in 1808; however, Adair Crawford in 1790 recognized a new mineral (strontianite) as differing from other barium minerals.

Forms

Strontium is found chiefly as celestite and strontianite. The metal can be prepared by electrolysis of the fused chloride mixed with potassium chloride, or is made by reducing strontium oxide with aluminum in a vacuum at a temperature at which strontium distills off. Three allotropic forms of the metal exist, with transition points at 235 and 540°C.

Properties

Strontium is softer than calcium and decomposes in water more vigorously. It does not absorb nitrogen below 380°C. It should be kept under kerosene to prevent oxidation. Freshly cut strontium has a silvery appearance, but rapidly turns a yellowish color with the formation of the oxide. The finely divided metal ignites spontaneously in air. Volatile strontium salts impart a beautiful crimson color to flames, and these salts are used in pyrotechnics and in the production of flares. Natural strontium is a mixture of four stable isotopes.

Isotopes

Sixteen other unstable isotopes are known to exist. Of greatest importance is 90Sr with a half-life of 29 years. It is a product of nuclear fallout and presents a health problem. This isotope is one of the best long-lived high-energy beta emitters known, and is used in SNAP (Systems for Nuclear Auxilliary Power) devices. These devices hold promise for use in space vehicles, remote weather stations, navigational buoys, etc., where a lightweight, long-lived, nuclear-electric power source is needed.

Uses

The major use for strontium at present is in producing glass for color television picture tubes. It has also found use in producing ferrite magnets and in refining zinc. Strontium titanate is an interesting optical material as it has an extremely high refractive index and an optical dispersion greater than that of diamond. It has been used as a gemstone, but is very soft. It does not occur naturally.

Source: Los Alamos National Laboratory

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