Thieme Chemistry

Trisociety Symposium, 9 June '02

Kristina Kurz, Ph.D.

Sales Manager, Electronic Products

Thieme Publishers, New York

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Thieme Publishing Group

130 years of publishing

Thieme is the one of the largest independent medical publishers worldwide with offices in Stuttgart, New York and Singapore.

Thieme Chemistry

Thieme has published evaluated information for synthetic chemists in pharmaceutical and chemical industry for almost 100 years.

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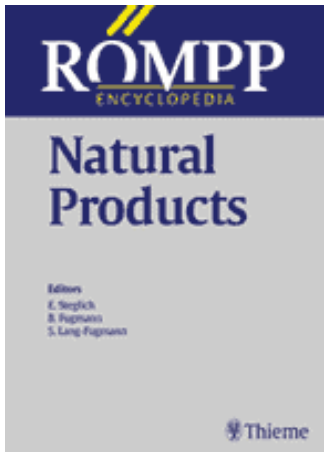

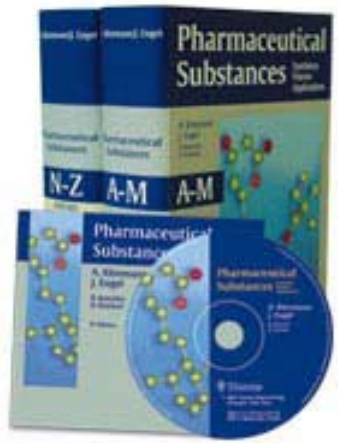

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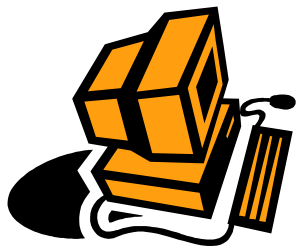
Integration of chemistry related information

isolated → integrated



complex → easy

Thieme Chemistry

Integration of chemistry related information

The goal is to facilitate access to chemistry information!

- changing the format (print to electronic)
- indexing text, structures, reactions and descriptors
- user friendly search interface
- cross linking between products
- integrating archival material

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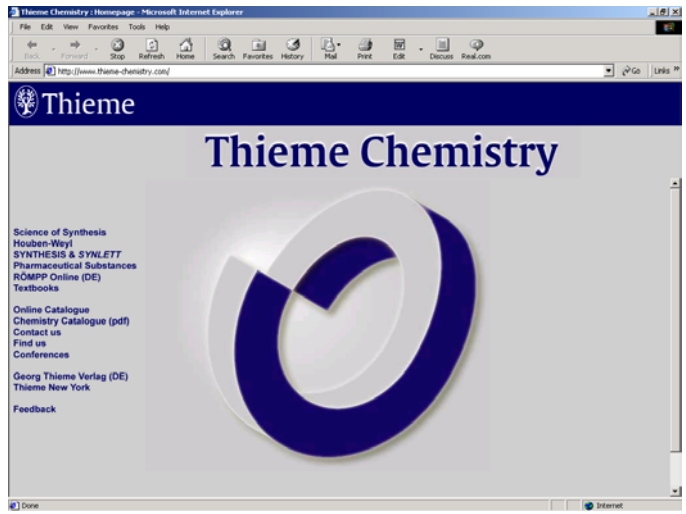
Text, structures and reaction data from all products searchable through one interface.

Reference Works →

Encyclopedias →

Journals →



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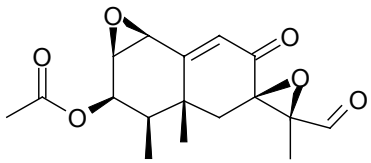

PR toxin, penicillium roqueforti

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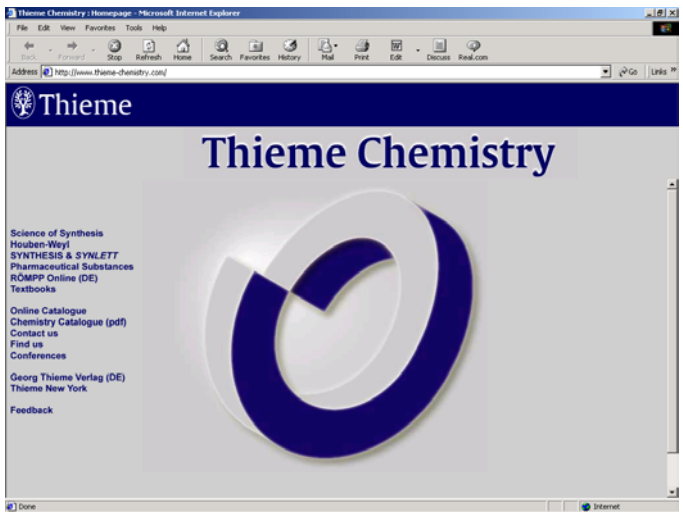

- Synthesis: Reference Works
- Factual data: Encyclopedias
- Latest results: Journals

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Release Phase 1: Reference Works

May 2002

Science of Synthesis
Houben-Weyl, Methods of Molecular Transformation

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Science of Synthesis

Science of Synthesis is the only resource that offers a **truly comprehensive description of preparative methods** in a consistent style and delivers reliable **experimental procedures to the desk top**.

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Science of Synthesis

> 1000 authors

55,000 pages

180,000 reactions

800,000 structures

To be released in 48 volumes from 2000-2008

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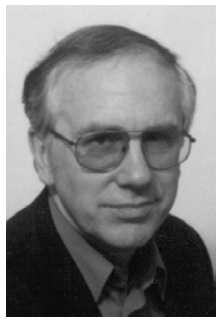

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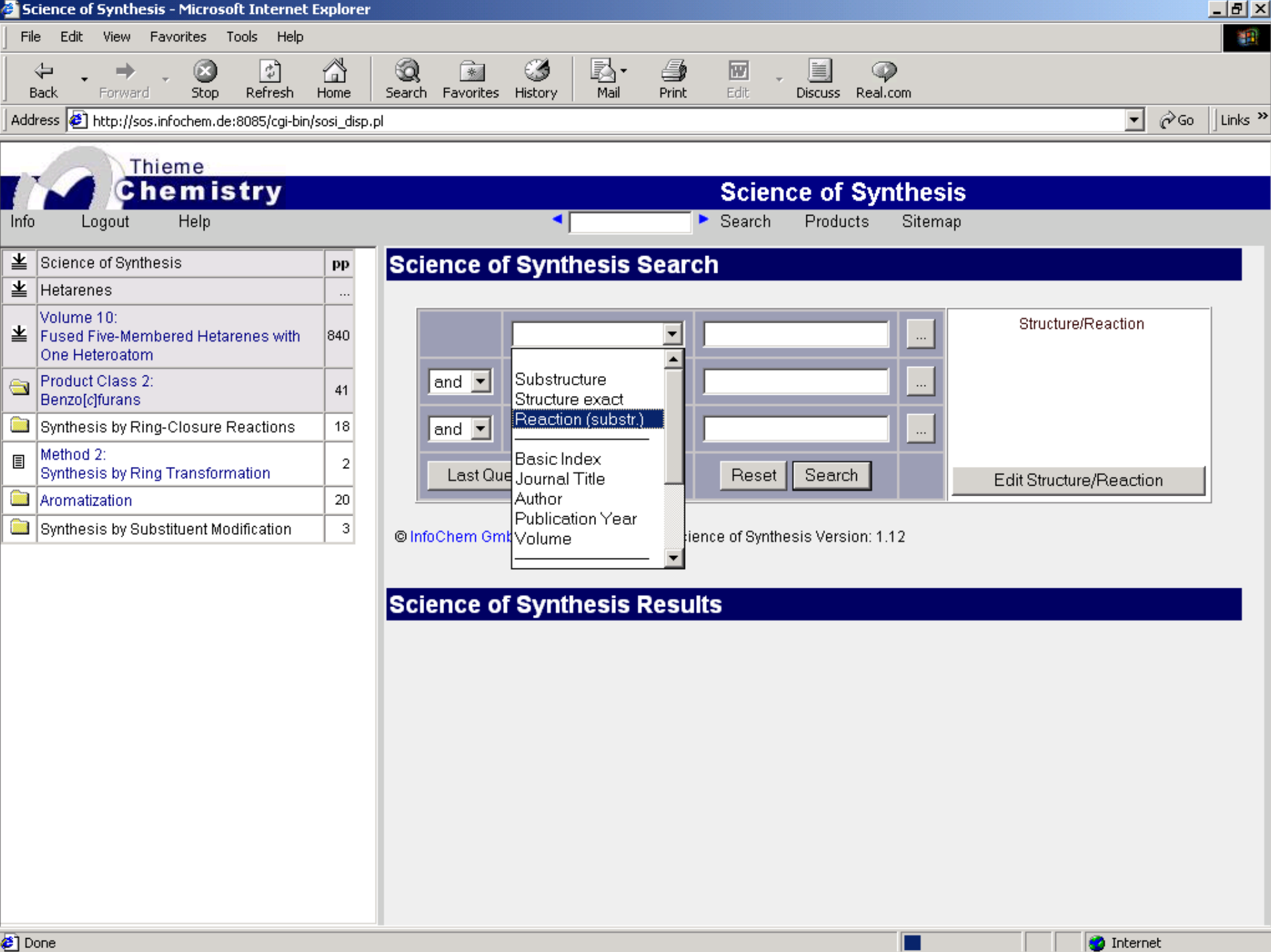
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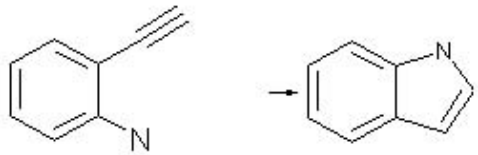

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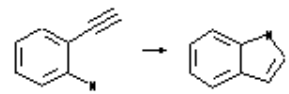

for query features look in ISIS

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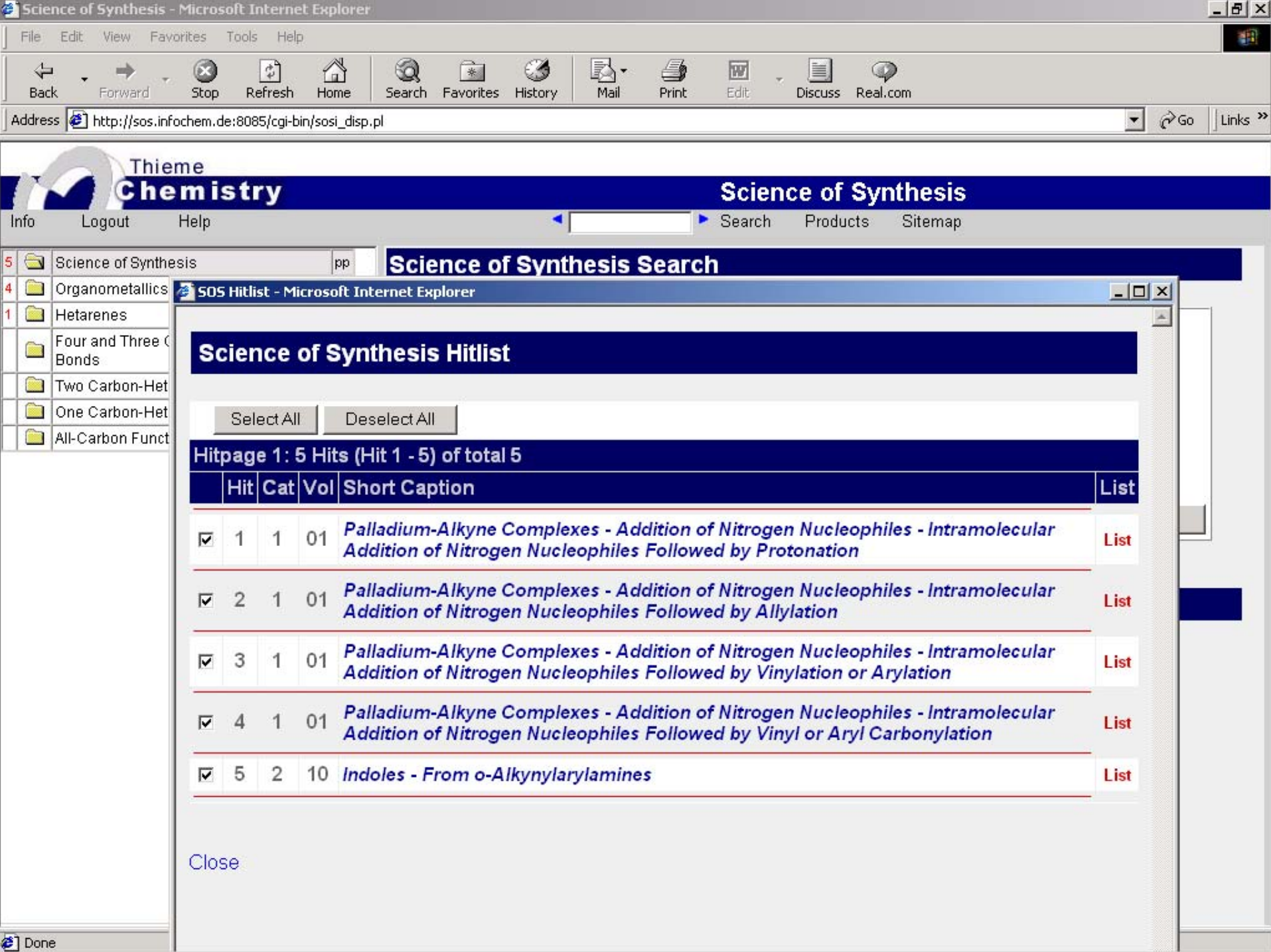
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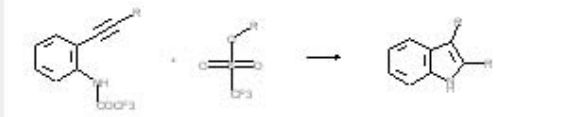	Go
	

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- Four and Bonds
- Two Carb
- One Carb
- All-Carbo

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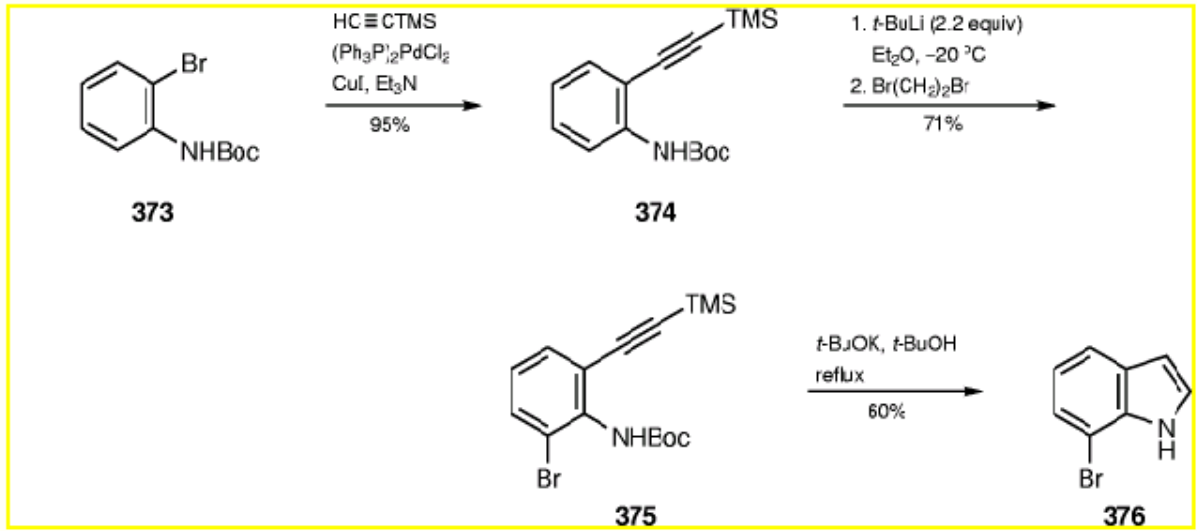
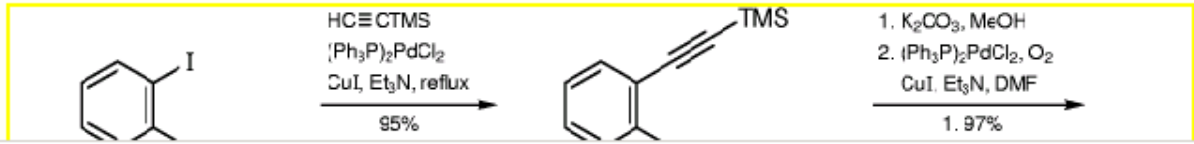
Scheme 104 Base-Catalyzed Formation of 7-Bromo-1*H*-indole from an *o*-Alkynylarylamine[276]



This route to indoles can be used very effectively; 2,2′-bisindole (380) is prepared by coupling *N*-(ethoxycarbonyl)-2-iodoaniline (377) with trimethylsilylacetylene to give 378, oxidative dimerization of the corresponding *C*-hydrogen acetylene (→ 379) and then double base-catalyzed indole ring formation gives 380 (**Scheme 105**).[269]

Scheme 105 2,2′-Bisindole via Base-Catalyzed Ring Closure of an *o*-Alkynylarylamine[269]



Thieme Chemistry

Approaching… 100 years Houben-Weyl

Synthetic Methodology information doesn't outdate!

Dr. Barry Sharpless in an interview with Cath O'Driscoll in Chemistry in Britain, November 2001

'You can get good drugs easily in a timescale of a few years rather than in 10 or 12 if only chemists would change their style'. In developing his own version of Nature's modular style of synthesis, 'click chemistry', Sharpless had to immerse himself once again in the literature. 'For a while I was just a machine', he says: **'I read all of *Houben-Weyl.* I looked for all of the best parts and all of the really good reactions** ….. **According to Sharpless, most of the very best reactions were already discovered 25 years ago**: 'They almost always worked, you didn't have to work under inert atmospheres. You could just boil things up and the crystals came out ……'

100 years Houben-Weyl

The 1st edition of the Houben-Weyl series was published in 1909.

100 years Houben-Weyl

140,000 reactions

580,000 structures

700,000 references

are accessible though a similar interface to Science of Synthesis!

METHODEN DER ORGANISCHEN CHEMIE

(HOUBEN-WEYL)

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ZUR VIERTEN AUFLAGE

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Houben-Weyl

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dioxin Search

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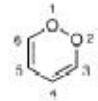
A. 6-Ring Systems with Two Heteroatoms

1. 6-Ring Systems with Two *O*-Atoms

1.1. 1,2-Dioxins

E. Schaumann

1,2-Dioxins (1,2-dioxacyclohexadienes) are not known. An ab initio SCF calculation indicates that the parent system is less stable than 1,4-dioxin by 48.3 kcal · mol^{-1}.[1] Bond lengths (Å) and angles were calculated and some degree of conjugation was derived, but certainly no aromatic stabilization.

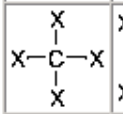
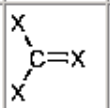
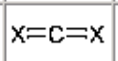
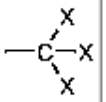
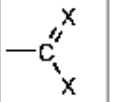
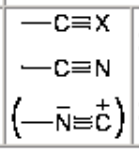
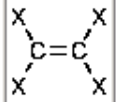
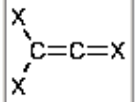
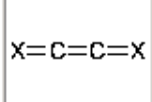
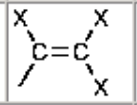
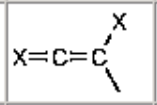
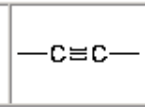
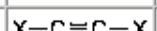
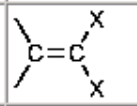
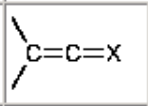
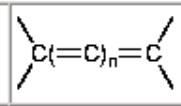
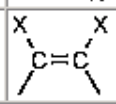
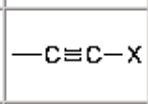
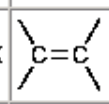
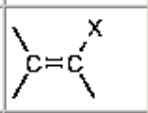
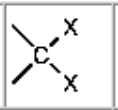
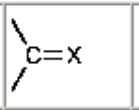
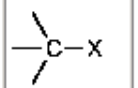


Bond	Bond Length (Å)	Bonds	Bond Angle (°)
O1–O2	1.479	O1–O2–C3/C6–O1–O2	116
O2–C3/O1–C6	1.408	O2–C3–C4/C5–C6–O1	125
C3–C4/C5–C6	1.310	C3–C4–C5/C4–C5–C6	119
C4–C5	1.467		

The ring system is obviously destabilized by repulsion of π-electrons and nonbonding electron

Houben-Weyl Guide

General chart (X=Hal, O, *S*, *Se*, *Te*, *N*, *P*)

Number of Heteroatoms on 1-C-Atoms				Number of Heteroatoms on 2- or more C-Atoms				
4	3	2	1	4	3	2	1	0
								
								
								
								
								
								
								Cyclopropenes Cyclobutenes Cyclobutadienes
							Arene-X Hetarene-X	Arenes, Arynes Hetarenes E6-9
								Carbocyclic π-electron systems Saturated hydrocarbons Cyclopropanes Cyclobutanes

Houben-Weyl Guide

No Heteroatoms:

Hetarenes	E 6 – 9	
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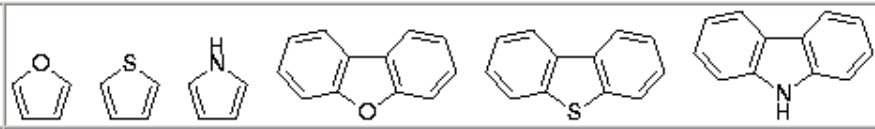
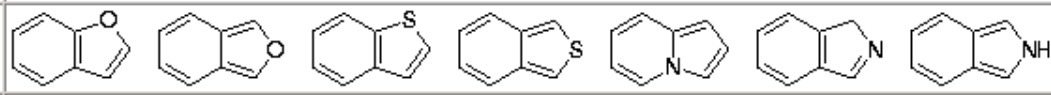
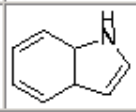
	a)	
	b_1)	
	b_2)	
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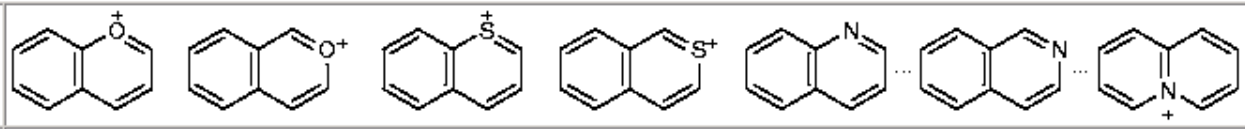
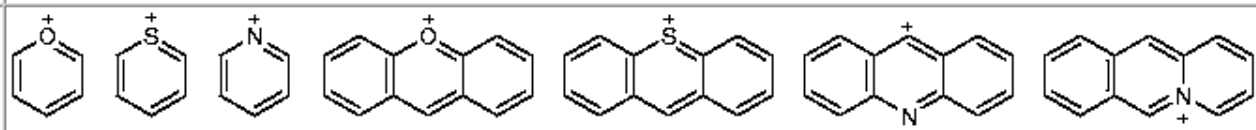
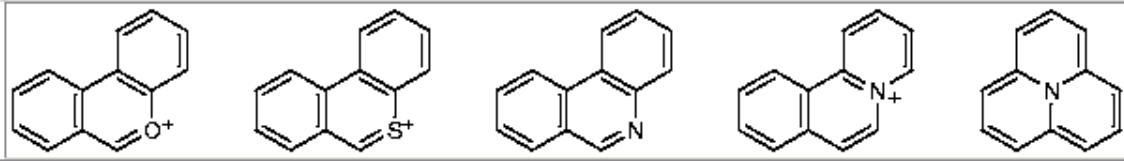
	a)	
	b)	
		
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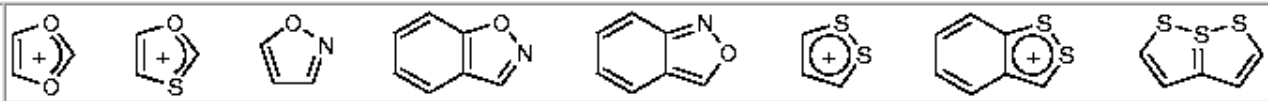
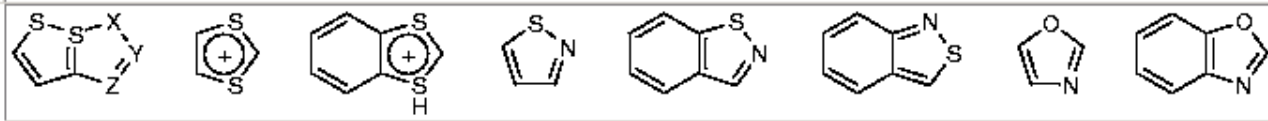
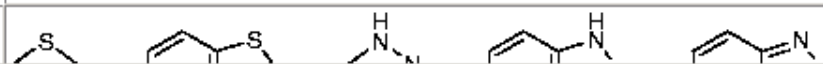
	a)	
		
	b)	

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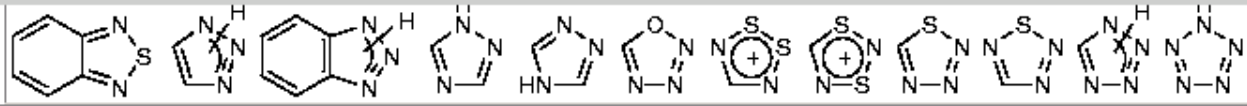

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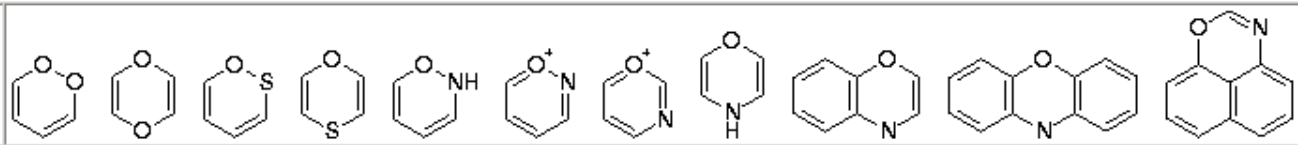
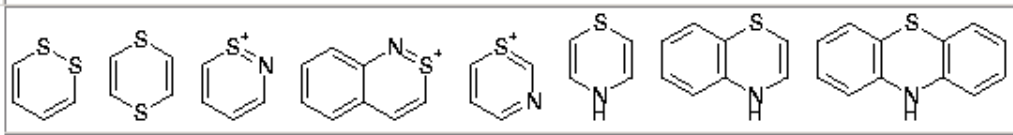
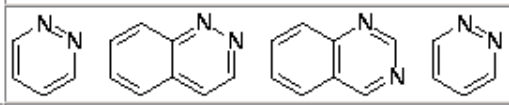
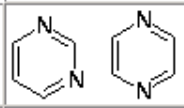
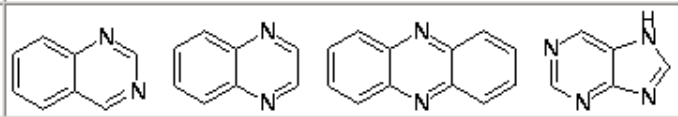
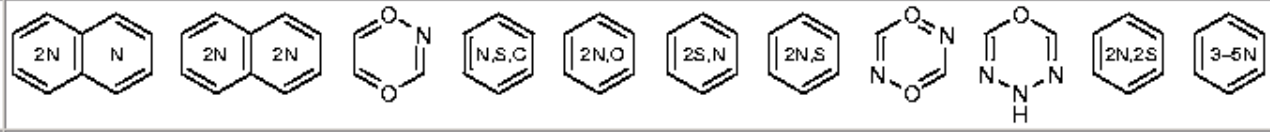
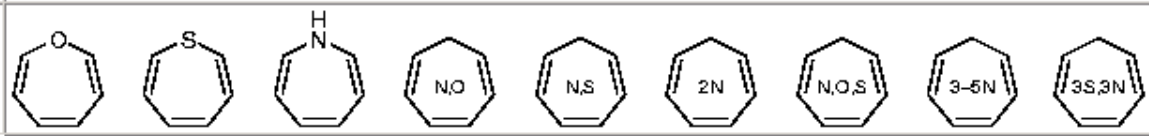
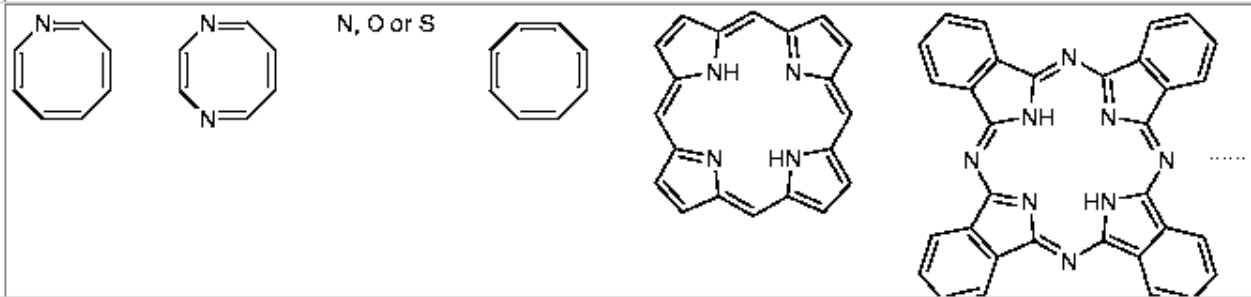
a)	
	
	
b_1)	
b_2)	
c)	
d)	
	

Thieme

Houben-Weyl

Website Demo Version

Search Guide Info

dioxin Search

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9		1.	6-Ring systems with two O-atoms	E9a	1
8		1.2.	1,4-Dioxins and annulated derivatives	E9a	3
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Houben-Weyl Demo Version - Document HD-086-0004

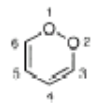
A. 6-Ring Systems with Two Heteroatoms

1. 6-Ring Systems with Two *O*-Atoms

1.1. 1,2-Dioxins

E. Schaumann

1,2-Dioxins (1,2-dioxacyclohexadienes) are not known. An ab initio SCF calculation indicates that the parent system is less stable than 1,4-dioxin by 48.3 kcal · mol^{-1}.[1] Bond lengths (Å) and angles were calculated and some degree of conjugation was derived, but certainly no aromatic stabilization.



Bond	Bond Length (Å)	Bonds	Bond Angle (°)
O1–O2	1.479	O1–O2–C3/C6–O1–O2	116
O2–C3/O1–C6	1.408	O2–C3–C4/C5–C6–O1	125
C3–C4/C5–C6	1.310	C3–C4–C5/C4–C5–C6	119
C4–C5	1.467		

The ring system is obviously destabilized by repulsion of π-electrons and nonbonding electron

125% 1 of 3 6.32 x 10.08 in

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July 2002

Pharmaceutical Substances,

Axel Kleemann and Jürgen Engel

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- Patents
- Classification by use and ATC code
- Registry Numbers, chemical name and molecular weight
- Trade name, formulation

Abacavir

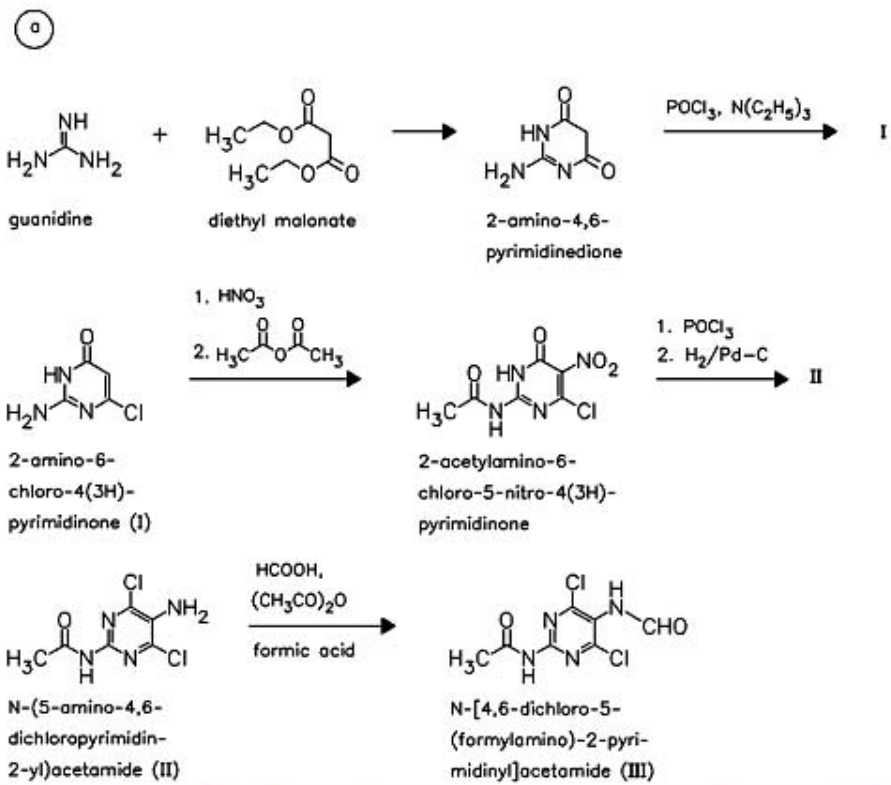
1592U89

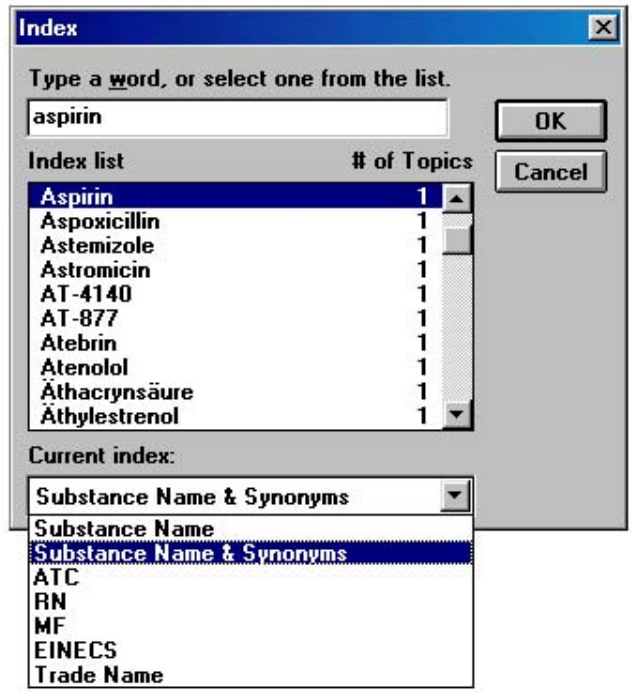
ATC: J05AF06 Use: antiviral, anti HIV, reverse transcriptase inhibitor

RN: 136470-78-5
MW: 286.34 MF: $C_{14}H_{18}N_6O$
CN: (1*S*,4*R*)-4-[2-Amino-6-(cyclopropylamino)-9*H*-purin-9-yl]-2-cyclopentene-1-methanol

succinate
RN: 168146-84-7
MW: 356.43 MF: $C_{14}H_{18}N_6O \cdot C_4H_6O$

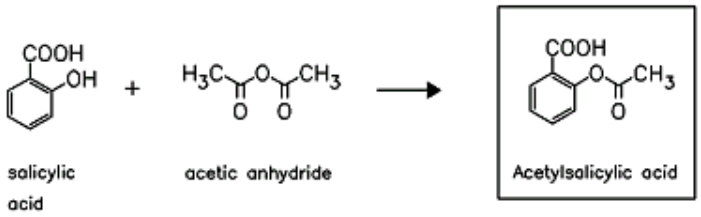
sulfate
RN: 188062-50-2
MW: 670.76 MF: $C_{14}H_{18}N_6O \cdot 1/2H_2SO_4$





Acetylsalicylic acid

Acidum acetylsalicylicum; Aspirin



Reference(s):

Ullmanns Encykl. Tech. Chem., 3. Aufl., Vol. **13**, 90.
US 3 235 583 (Norwich Pharmacal; 15.2.1966; appl. 22.7.1964).

acetylation in presence of pyridine *for avoidance of formation of* acetylsalicylic anhydride *and* acetylsalicylsalicylic acid:
DOS 2 635 540 (A. L. de Week, H. Bundgaard; appl. 6.8.1976).

acetylation in presence of H_2SO_4:
US 2 731 492 (J. Kamlet; 1956; appl. 1954).

crystallization:
US 2 890 240 (Monsanto; 1959; appl. 1957).

aluminum salts:
DRP 585 986 (Chinoin; appl. 1931; H.-prior. 1931).
US 2 698 332 (Reheis Comp.; 1954; appl. 1951).
US 2 918 485 (Keystone Chemurgic Corp.; 1959; appl. 1955).
GB 888 666 (Hardman & Holden; appl. 1959).

aluminum acetylsalicylate glutaminate:
DOS 2 909 829 (Kyowa Hakko; appl. 13.3.1979; J-prior. 13.3.1978).

Formulation(s):

cps. 325 mg, 500 mg, suppos. 125 mg, 150 mg, 300 mg; tabl. 50 mg, 75 mg, 100 mg, 300 mg, 500 mg

Trade Name(s):

D
Alka-Seltzer (Bayer)
Aspirin (Bayer; 1899)
Aspisol (Bayer; as DL-lysine salt)
Aspro (Roche Nicholas)
ASS Dura (durachemie)
ASS-rationpharm (rationpharm)

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650,000 structures

Houben-Weyl
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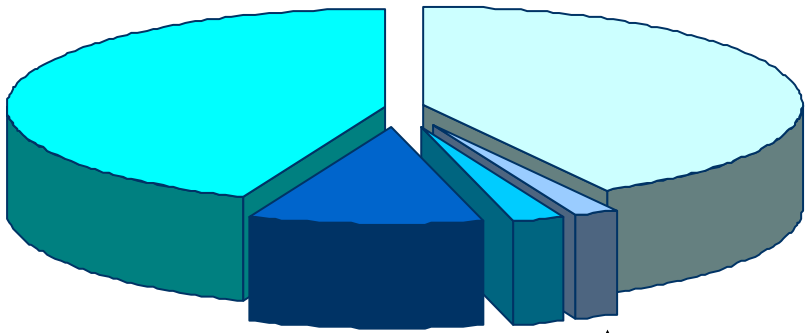
580,000 structures



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