Chemical Hieroglyphs: Abstract Depiction of Complex Void Space Topology of Nanoporous Materials

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This document contains topological rings (T-rings) representations of 191 zeolite frameworks contained in the International Zeolite Association (IZA) database. These structures used to obtain T-rings are hypothetical all-silica zeolites proposed by the IZA and may differ from experimentally determined structures.
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<td>137 RSN</td>
<td>140 SFN</td>
<td>155 SFN</td>
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Figure 1: ABW

5Å

Restriction: 2.80Å
Figure 2: ACO

5 Å ---

ACO

Restriction: 2.80 Å
Figure 3: AEI

Restriction: 2.80 Å
Figure 4: AEL
Figure 5: AEN
Figure 6: AET

Restriction: 2.80 Å
Figure 7: AFG

Restriction: 2.80Å
Figure 8: AFI

Restriction: 2.80 Å
Figure 9: AFN

AFN

Restriction: 2.8 Å
Figure 10: AFO

Restriction: 2.80Å
Figure 11: AFR

AFR

Restriction: 2.80 Å
Figure 12: AFS
Figure 13: AFT
Figure 14: AFX

AFX

Restriction: 2.80Å
Figure 15: AFY
Figure 16: AHT
Figure 18: APC

5 Å

APC

Restriction: 2.80 Å
Figure 19: APD

Restriction: 2.80 Å
Figure 20: AST

Restriction: 2.80 Å
Figure 21: ASV

ASV

Restriction: 2.80 Å
Figure 22: ATN

ATN

Restriction: 2.80Å

[Diagram of ATN structure with labels and measurements]
Figure 23: ATO

Restriction: 2.80 Å
Figure 24: ATS

ATS

Restriction: 2.80 Å
Figure 25: ATT

Restriction: 2.80 Å
Figure 26: ATV

ATV

Restriction: 2.80Å
Figure 27: AWO

AWO

Restriction: 2.80Å
Figure 29: BCT

BCT

Restriction: 2.80Å
Figure 30: BEA

BEA

Restriction: 2.80Å
Figure 31: BEC

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Restriction: 2.80 Å
Figure 32: BIK

BIK

Restriction: 2.80 Å
Figure 33: BOF

BOF

Restriction: 2.80Å
Figure 35: BPH
Figure 36: BRE

BRE

Restriction: 2.80 Å
Figure 37: BSV

BSV

Restriction: 2.80Å
Figure 38: CAN

Restriction: 2.80Å
Figure 39: CAS

Restriction: 2.80 Å
Figure 40: CDO

Restriction: 2.80 Å
Figure 41: CFI
Figure 43: CGS

Restriction: 2.80 Å
Figure 44: CHA

CHA

Restriction: 2.80 Å
Figure 45: CHI

Restriction: 2.80Å
Figure 47: CON

CON

Restriction: 2.80Å
Figure 48: CZP

CZP

5Å

Restriction: 2.80Å

[4.8²]

[4.12²]

[4².8².12²]
Figure 49: DAC
Figure 50: DDR

[Diagram of DDR with annotations and scale bar indicating 5 Å.]

Restriction: 2.80 Å
Figure 51: DFO

5Å

Restriction: 2.80Å
Figure 52: DFT
Figure 53: DOH
Figure 54: DON
Figure 55: EAB

EAB

Restriction: 2.80 Å
Figure 56: EDI

EDI

Restriction: 2.80 Å
Figure 57: EMT

Restriction: 2.80Å
Figure 58: EON

Restriction: 2.80Å
Figure 59: EPI

5 Å

Restriction: 2.80 Å

[Diagram of EPI with annotations]
Figure 60: ERI
Figure 61: ESV

ESV

Restriction: 2.80 Å
Figure 62: ETR

Restriction: 2.80 Å
Figure 65: FAR

Restriction: 2.80 Å
Figure 66: FAU
Figure 67: FER
Figure 68: FRA

Restriction: 2.80Å
Figure 69: GIS

GIS

Restriction: 2.80Å
Figure 70: GIU

Restriction: 2.80 Å
Figure 71: GME

Restriction: 2.80Å
Figure 72: GON
Figure 73: GOO

Restriction: 2.80 Å
Figure 74: HEU

Restriction: 2.80Å
Figure 75: IFR

5Å

Restriction: 2.80Å
Figure 76: IHW
Figure 77: IMF

Restriction: 2.80Å
Figure 78: ISV

Restriction: 2.80 Å
Figure 79: ITE

ITE

Restriction: 2.80Å
Figure 81: ITR
Figure 82: ITW

Restriction: 2.80 Å
Figure 83: IWR
Figure 84: IWS

Restriction: 2.80 Å
Figure 85: IWV

IWV

[4\textdegree]

[4.5\textdegree]

[4.5\textdegree, 6\textdegree, 12\textdegree]

[5\textdegree, 6\textdegree]

[4\textdegree, 6\textdegree]

5 Å

Restriction: 2.80 Å
Figure 88: JRY
Figure 90: LAU

LAU

[4^2.6^1]

[4^2.6^1]

[4^2.6^1]

[4^2.10^4]

[4^2.10^4]

[4^2.10^4]

[4^2.10^4]

[4^2.10^4]

Restriction: 2.80Å
Figure 91: LEV

LEV

Restriction: 2.80 Å
Figure 92: LIO

Restriction: 2.80Å
Figure 93: LIT
Figure 94: LOS

LOS

Restriction: 2.80 Å
Figure 95: LOV

Restriction: 2.80 Å
Figure 96: LTA

Restriction: 2.80 Å
Figure 97: LTF
Figure 98: LTL
Figure 99: LTN

\[ \text{Restriction: } 2.80 \text{Å} \]
Figure 100: MAR
Figure 101: MAZ
Figure 102: MEI

MEI

Restriction: 2.80Å
Figure 103: MEL

Restriction: 2.80 Å
Figure 104: MEP

MEP

Restriction: 2.80 Å
Figure 105: MER

5Å

MER

Restriction: 2.80Å
Figure 106: MFI
Figure 107: MFS
Figure 108: MON

MON

Restriction: 2.80Å
Figure 109: MOR
Figure 110: MOZ

MOZ

Restriction: 2.80Å
Figure 112: MSE

MSE

Restriction: 2.80 Å
Figure 113: MSO
Figure 114: MTF

MTF

Restriction: 2.80Å
Figure 115: MTN

MTN
Restriction: 2.80Å
Figure 116: MTT
Figure 117: MTW

Restriction: 2.80 Å
Figure 118: MWW

Restriction: 2.80 Å
Figure 119: NAB

5 Å

NAB

Restriction: 2.80 Å
Figure 120: NAT

NAT

[8.9°]

[41]

[4.8°]

Restriction: 2.80 Å
Figure 121: NES

Restriction: 2.80 Å
Figure 122: NON

Restriction: 2.80 Å

[Diagram: NON structure with labels [5.6.12], [4.5.5], and [5.6.4]]
Figure 123: NPO

[Diagram showing NPO with labels and measurements]

Restriction: 2.80Å
Figure 124: NSI

Restriction: 2.80 Å
Figure 125: OBW

5 Å

OBW

Restriction: 2.80 Å
Figure 127: OSI

OSI

Restriction: 2.80 Å
Figure 128: OSO
Figure 130: PAR

Restriction: 2.80 Å
Figure 131: PAU
Figure 132: PHI

Restriction: 2.80 Å
Figure 133: PON

[Diagram of PON molecule with annotations and scale bar indicating 5Å.]

Restriction: 2.80Å
Figure 134: RHO

Restriction: 2.80Å
Figure 136: RRO

[Diagram showing RRO with annotations and a scale in Ångstroms.]

Restriction: 2.80 Å
Figure 137: RSN

![Diagram of RSN with annotations and measurements. The diagram shows various labeled points, such as 4', 8', and 9', and a restriction of 2.80 Å.]
Figure 139: RTH

| 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |

RTH

Restriction: 2.80 Å
Figure 140: RUT
Figure 141: RWR
Figure 142: RWY

RWY

Restriction: 2.80 Å
Figure 143: SAO

[Diagram of SAO with annotations and scale bar indicating 5 Å and restriction of 2.80 Å]
Figure 144: SAS

SAS

Restriction: 2.80\AA
Figure 145: SAT
Figure 146: SAV

[Diagram of SAV with annotations and a scale bar indicating 5 Å and a restriction of 2.80 Å]
Figure 147: SBE

Restriction: 2.80Å
Figure 148: SBN

SBN

Restriction: 2.80Å
Figure 149: SBS

5Å – 15Å

Restriction: 2.8Å
Figure 150: SBT

5Å H

SBT

Restriction: 2.80Å
Figure 151: SFE

Restriction: 2.80 Å
Figure 152: SFF
Figure 153: SFG

5Å

SFG

Restriction: 2.80Å
Figure 154: SFH

Restriction: 2.80 Å
Figure 155: SFN

Restriction: 2.80 Å
Figure 156: SFO

SFO

Restriction: 2.80Å
Figure 158: SGT

![Diagram of SGT with restrictions and labels]
Figure 159: SIV
Figure 160: SOD

[Diagram of SOD with annotations and scale in Ångstroms]

Restriction: 2.80 Å
Figure 161: SOF

Restriction: 2.80Å
Figure 162: SOS
Figure 163: SSF

SSF

Restriction: 2.80Å

[3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20] 5Å
Figure 164: SSY

SSY

Restriction: 2.80 Å
Figure 165: STF

Restriction: 2.80Å
Figure 166: STI
Figure 167: STO
Figure 168: STT

Restriction: 2.80 Å
Figure 169: STW

STW

Restriction: 2.80 Å
Figure 170: SVR
Figure 171: SZR
Figure 172: TER
Figure 174: TOL

Restriction: 2.80 Å
Figure 175: TON

Restriction: 2.80 Å
Figure 176: TSC

Restriction: 2.80 Å
Figure 178: UEI

5Å

UEI

Restriction: 2.80Å
Figure 179: UFI
Figure 180: UOS

Restriction: 2.80 Å
Figure 181: UOZ
Figure 182: USI
Figure 183: UTL

5Å

Restriction: 2.80Å

UTL

[5^2.14^2]

[6^2.14^2]

[4^2, 5^2]

[4^2, 5^2.14^2]

[4^2, 5^2.14^2]

[5^2.12^2.14^2]

[4^2, 5^12.12^2]

[4^2, 5^2.14^2]

[5^2.6^2]

[5^2]
Figure 184: VET

VET

Restriction: 2.80Å
Figure 185: VFI

5Å\(\text{H}\)  
Restriction: 2.80Å
Figure 186: VNI
Figure 187: VSV

VSV

Restriction: 2.80 Å

5 Å
Figure 188: WEI

5Å

WEI

Restriction: 2.80Å
Figure 189: WEN
Figure 190: YUG

5 Å

YUG

Restriction: 2.80 Å
Figure 191: ZON

ZON

Restriction: 2.80Å