

ADVANCED ADSORBENT TECHNOLOGY DRIVES THE FUTURE OF ENERGY



PRESENTED BY

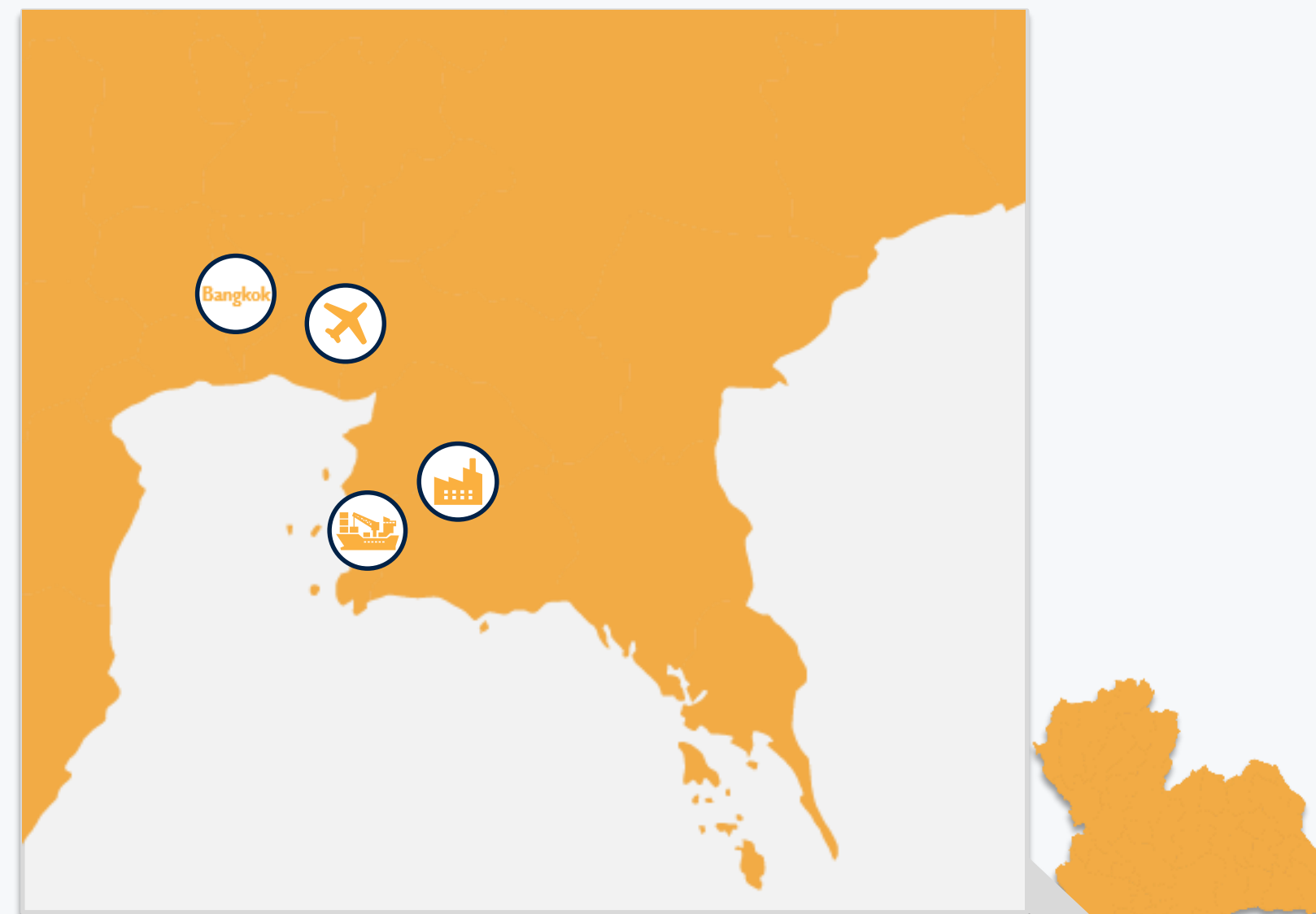
HIMANSHU SHARMA
COUNTRY HEAD - MIDDLE EAST & INDIA
OF JALON THAILAND

THURSDAY, JUNE 11, 2026
11:20 – 11:40
ROOM: DUSIT 1

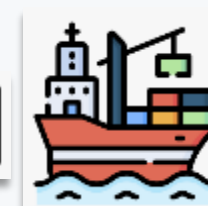
ABOUT US



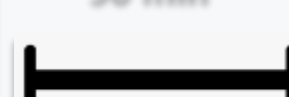
JALON Thailand, a wholly owned subsidiary of Luoyang Jalon Micro-nano New Materials Co., Ltd., is an engineering and manufacturing hub in Thailand, delivering high-performance molecular sieves for global customers.



30 min



90 min



PRODUCTION CAPACITY



ZEOLITE MOLECULAR SIEVE

24,000 TONS ANNUAL

ACTIVATED ZEOLITE POWDER

3,000 TONS ANNUAL



SYNTHETIC ZEOLITE POWDER

43,000 TONS ANNUAL

ZEOLITE MOLECULAR SIEVE

45,000 TONS ANNUAL

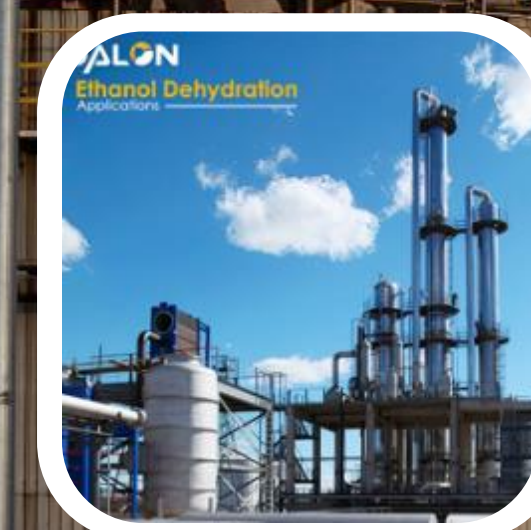
ACTIVATED ALUMINA

5,000 TONS ANNUAL

ACTIVATED ZEOLITE POWDER

4,500 TONS ANNUAL

RECOMMEND APPLICATION



- PSA Oxygen Generators
- VPSA Oxygen Generators
- Hydrogen Purification
- Ethanol Dehydration
- Cryogenic Air Separation
- Natural Gas
- Biogas Upgrading
- Air Drying
- Air Braking System
- Insulated Glass
- Pharmacy Packaging
- Cooling System

The background of the entire image is a dense, uniform field of small, spherical, yellowish-tan particles, which are molecular sieve beads. The text is overlaid on this background.

MOLECULAR SIEVE

JLPM Series

VPSA BIOGAS PURIFICATION UNIT

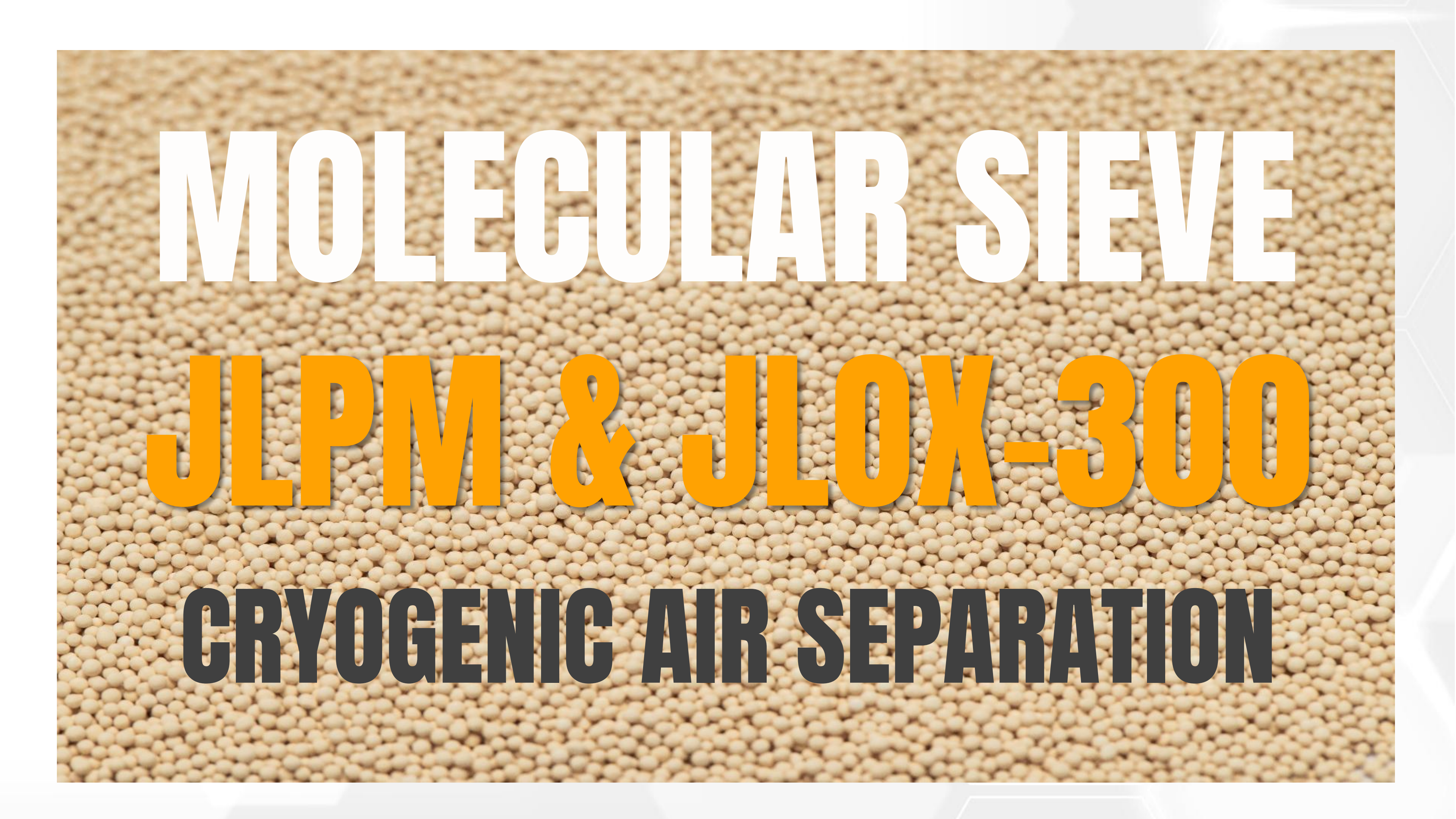
JLPM4

Molecular Sieve JLPM4

- Crystal Structure:** Features a type X crystal in sodium form, offering a significantly larger pore opening than type A crystals.
- Optimized Adsorption:** Engineered for maximum CO₂ adsorption from the feed.
- Minimize Co-adsorption:** Specifically modified to minimize the co-adsorption of CH₄.
- Market-Leading Performance:** Boasts the lowest methane co-adsorption compared to any other commercially available molecular sieve product line.



Property	Unit	JLPM4	Note
Diameter	mm	1.6-2.5	Beads
Static CO ₂ Adsorption	%wt	≥19.00	250mmHg, 25°C, Activated
Crush Strength	N	≥30.00	Avg 25 beads
Bulk Density	g/ml	0.63	Tapped
WaterContent	%wt	≤1.50	1hr, 550°C

The background of the entire image is a dense, uniform field of small, spherical, yellowish-tan beads, which are molecular sieves. The beads are tightly packed and fill the entire frame.

MOLECULAR SIEVE

JLPM & JLOX-300

CRYOGENIC AIR SEPARATION

PRODUCT DEVELOPMENT

JALON MOLECULAR SIEVE FOR CRYOGENIC ASU



- CO₂ adsorption efficiency of 13X is greatly improved comparing with 5A, so 5A molecular sieves are replaced gradually.
- CO₂ adsorption capacity of JLPM3 has increased by 30~40% compared with that of 1st generation 13X molecular sieve.
- CO₂ adsorption capacity of the 3rd generation high -efficiency molecular sieve JLOX-300 has increased by 60~70% compared with 13X molecular sieve.
- The 4th generation adopts a special production process and introduces fully crystalline multi-level pore technology to improve the adsorption rate and product strength and extend the service life.
- **The 5th generation JLPM1 has leading comprehensive performance, and the dynamic CO₂ adsorption capacity has been greatly improved.**

MOLECULAR SIEVE **JLPM3 & JLOX-300**



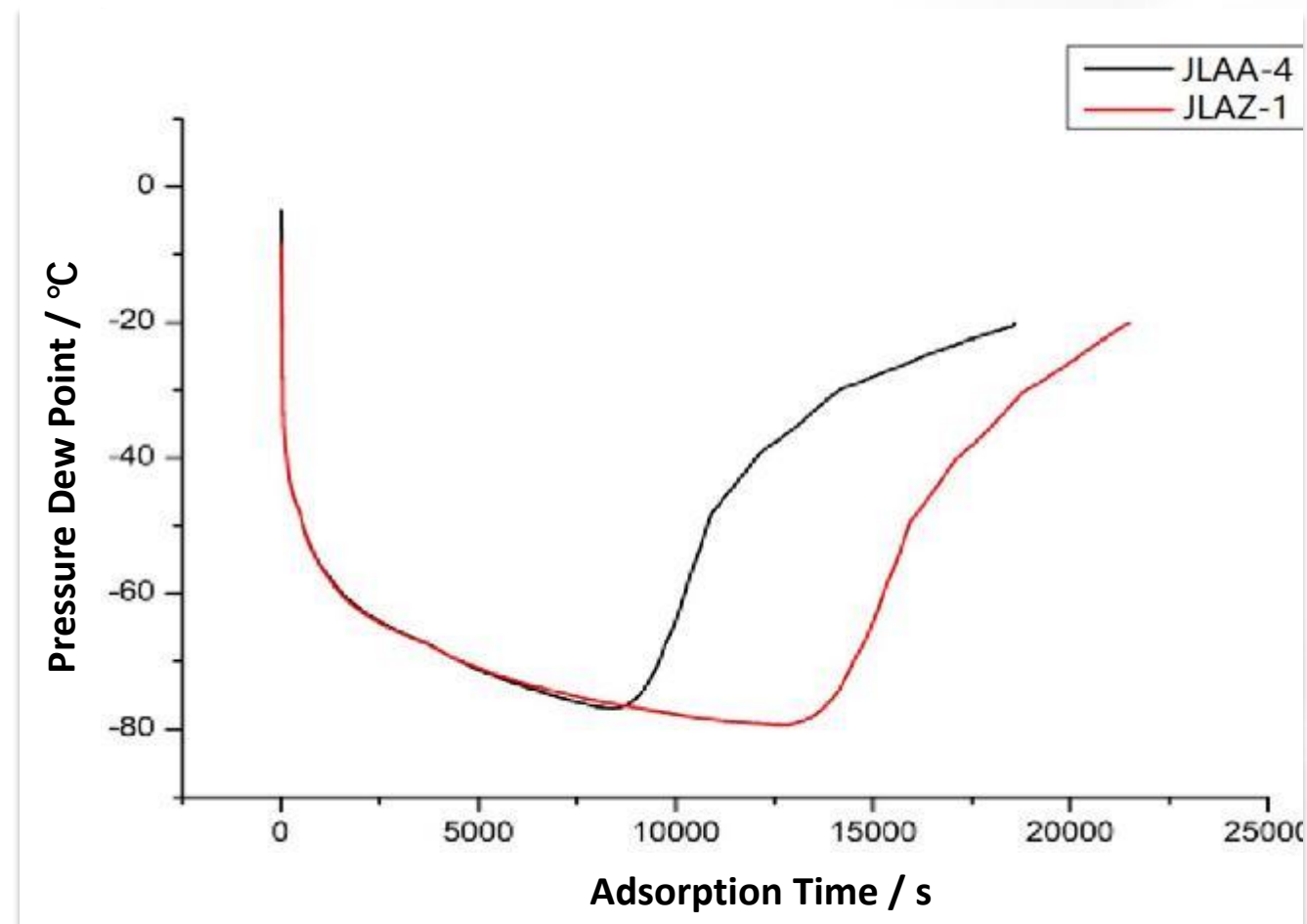
UPGRADED 13X SOLUTIONS **FOR CRYOGENIC ASU**

- **Advanced Engineering:** Both products are advanced molecular sieves derived from standard 13X, specifically tailored for high-performance pre-purification in cryogenic air separation.
- **JLPM3 Performance:** Utilizes binderless technology to maximize both CO₂ and moisture adsorption.
- **JLPM3 Durability:** Maintains excellent mechanical strength despite the high adsorption capacity.
- **JLOX-300 Formulation:** Features an optimized blend of raw powder and clay to enhance dynamic adsorption.
- **JLOX-300 Capacity:** Offers higher CO₂ capacity, particularly under conditions of low partial pressure.



Property	Unit	Standard 13X	JLPM3	JLOX-300	Note
Diameter	mm	1.6-2.5	1.6-2.5	1.6-2.5	Beads
Static Water Adsorption	%wt	≥26.50	≥30.00	≥28.50	RH75%, 25°C, Activated
Static CO ₂ Adsorption	%wt	≥18.5	≥21.00	≥19.50	250mmHg, 25°C, Activated
Static CO ₂ Adsorption	%wt	-	≥6.50	≥6.80	2.5mmHg, 25°C, Activated
Bulk Density	g/ml	≥0.64	0.64-0.68	0.65-0.70	Tapped
Crush Strength	N	≥30.00	≥30.00	≥25.00	Avg. 25 Beads
Water Content	wt%	≤1.5	≤1.5	≤1.5	550°C, 1h

HIGH PERFORMANCE **ACTIVATED ALUMINA JLAZ-1**



Testing Conditions:

- Loading Weight: 200g
- Adsorption Temperature: 25°C
- Adsorption Pressure: 0.5MPa (G)
- Flow Rate: 50NL/min
- Gas: Compressed Air

Under the same working conditions, the breakthrough time of JLAZ is 30% higher than that of JLAA (general grade activated alumina).

HIGH PERFORMANCE **ACTIVATED ALUMINA JLAZ-1**

Performance Comparison of JLAZ and JLAA at different regeneration temperature

Regeneration Temperature (°C)		300	250	225	200	175	150	125	100	90	80
Breakthrough Time (min)	JLAA	383	312	309	309	307	310	292	277	262	191
	JLAZ-1	499	451	437	450	431	453	391	367	285	281
Dew Point (°C)	JLAA	-46.3	-47.1	-46.8	-46.1	-46	-45	-45	-46	-44.4	-44.5
	JLAZ-1	-50.3	-50.2	-48.1	-48.4	-47.6	-44.8	-45.8	-45.6	-44.5	-43.4
Dynamic Water Adsorption Capacity (%)	JLAA	14.22	11.58	11.47	11.47	11.4	11.51	10.84	10.28	9.73	8.09
	JLAZ-1	18.4	16.59	16.08	16.55	15.89	16.66	14.38	13.5	10.48	10.34

- Under the same working conditions, JLAZ performs higer adsorption capacity and low dew point.
- Loading with JLPM1 molecular sieves, JLAZ-1 could extend the adsorption cycle of vertical radial flow adsorbers.

The background of the entire image is a dense, uniform field of small, spherical, yellowish-tan beads, which are molecular sieve beads. The beads are tightly packed and fill the entire frame.

MOLECULAR SIEVE

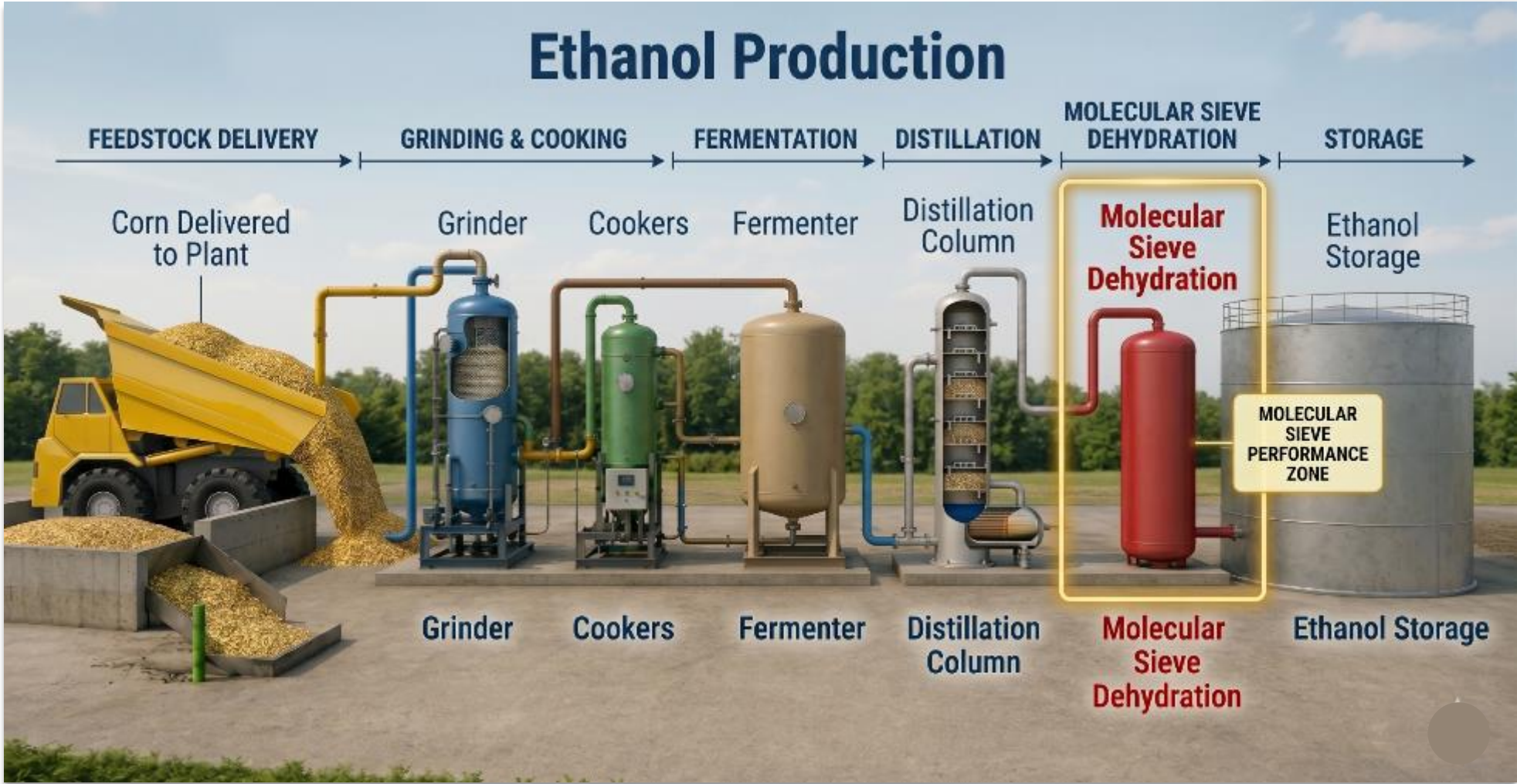
3A EDG

ETHANOL DEHYDRATION SERIES

3A EDG

Molecular Sieve 3A EDG

- **Superior Performance:** Highly rated for having significantly higher adsorption capacity and crush strength compared to competitors.
- **Optimal Kinetics:** Features outstanding water adsorption kinetics to ensure efficient dehydration processes.
- **High Purity:** Engineered with negligible ethanol co-adsorption and the ability to minimize byproduct formation.
- **Physical Durability:** Offers high mechanical strength and low attrition, ensuring long-term structural integrity of the bed.



Property	Unit	3A EDG	Note
Diameter	mm	2.5-5.0	Beads
Static Water Adsorption	%wt	≥22.00	RH 50%, 25°C
Crush Strength	N	≥130.00	Avg 25 beads
Bulk Density	g/ml	0.75	Tapped
Loss on Ignition	%wt	≤1.00	1hr, 575°C

The background of the entire image is a dense, uniform field of small, spherical, yellowish-tan beads, which are molecular sieves. The beads are packed closely together, creating a textured, granular appearance. The lighting is even, highlighting the smooth surface of the beads.

MOLECULAR SIEVE

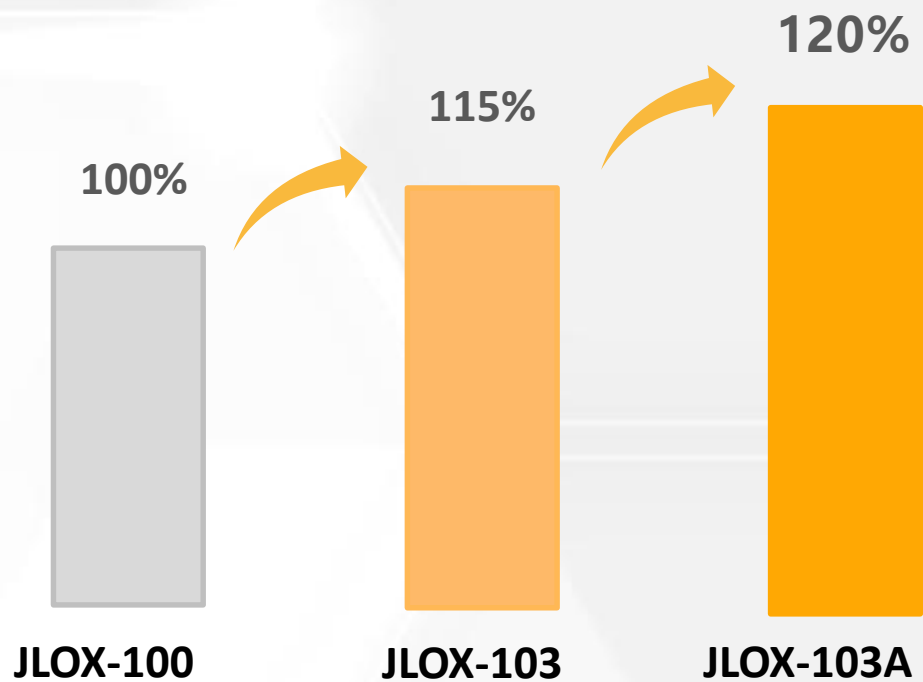
JLOX SERIES

OXYGEN ENRICHMENT

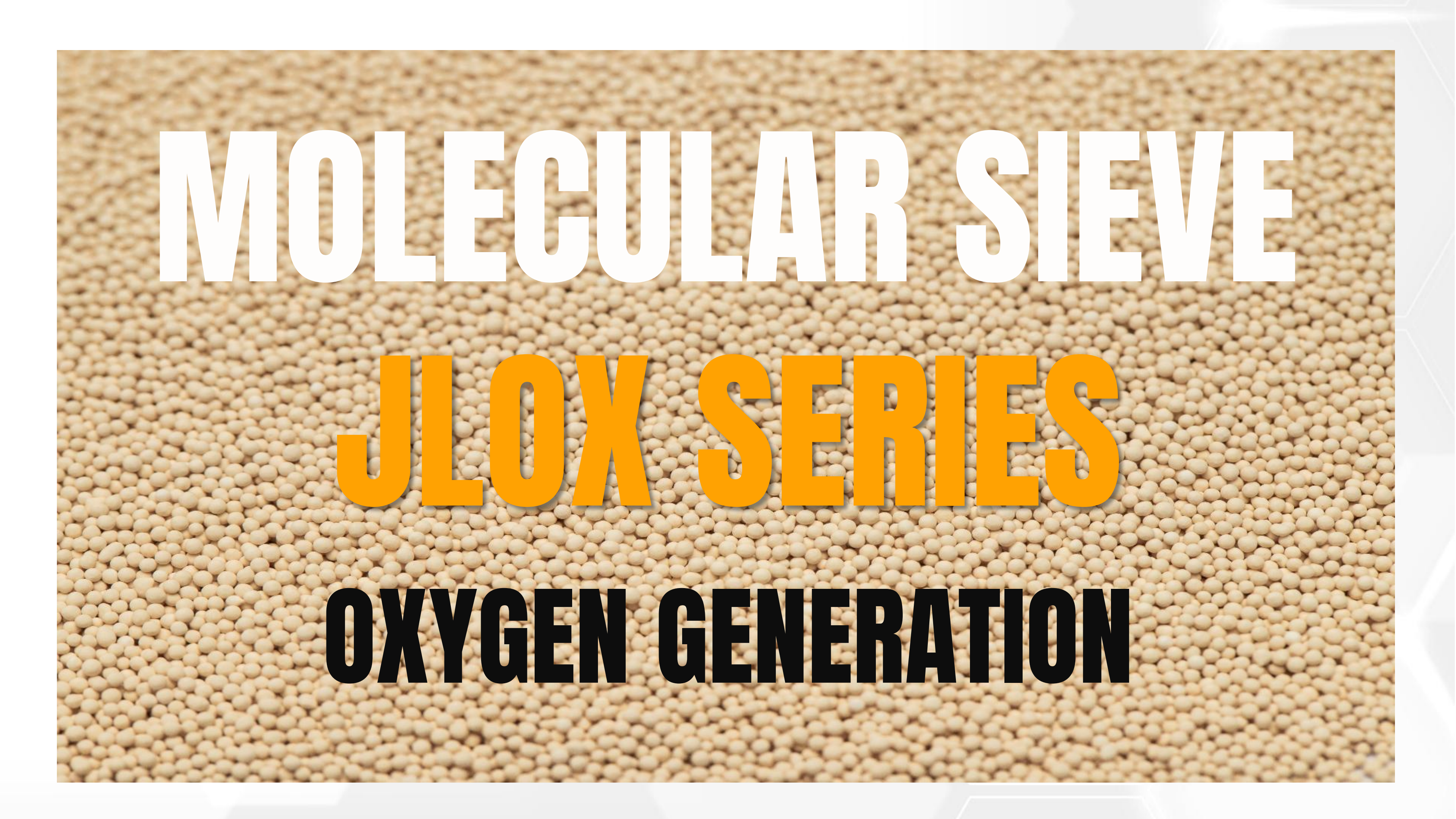
JLOX-100

Molecular Sieve Designed for VPSA Oxygen Enrichment

- **Target Application:** Specifically designed as a lithium-based molecular sieve for industrial **VPSA** (Vacuum Pressure Swing Adsorption) oxygen production.
- **Upgraded Process:** Developed with an enhanced formation process to ensure faster adsorption and desorption rates.
- **Mass Transfer:** Offers improved mass transfer performance, allowing for more efficient gas separation.
- **Structural Integrity:** Engineered to achieve these performance gains while maintaining high mechanical strength.



Product	JLOX-100 (1 st Generaton)	JLOX-103 (2 nd Generaton)	JLOX-103A (3 rd Generaton)
Working Pressure (KPa)		40/-50	
Product O ₂ Purity (%)		93	
Percent Yield (Nm ³ /h·t)	75~80	85~90	90~95
Energy Consumption (kW·h/Nm ³)	0.61	0.53	0.51

The background of the entire image is a dense, uniform field of small, spherical, yellowish-tan beads, which are molecular sieves. The beads are tightly packed and fill the entire frame.

MOLECULAR SIEVE

JLOX SERIES

OXYGEN GENERATION

JLOX-500

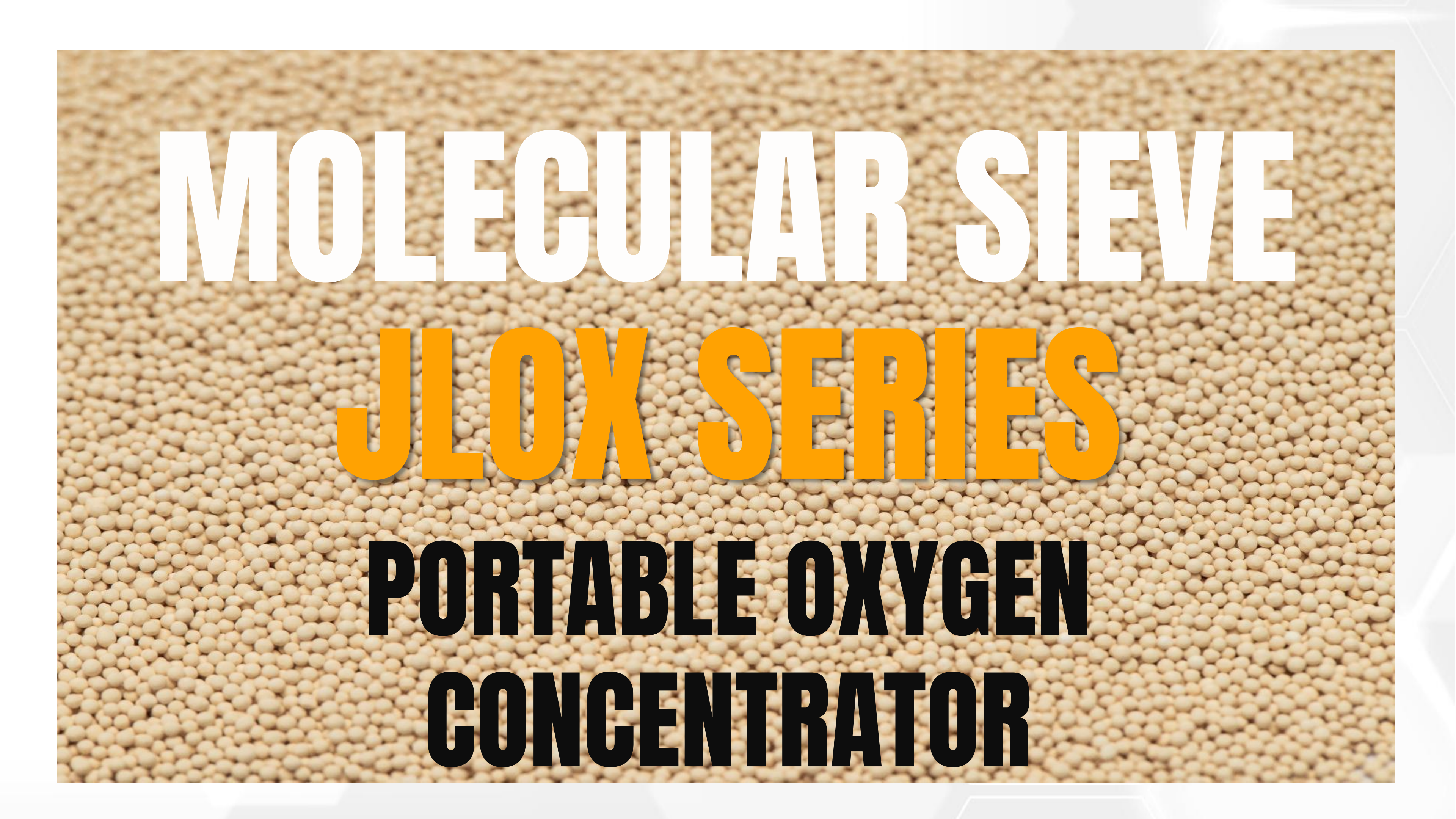


Molecular Sieve JLOX-500

Oxygen Generation

- **Material Composition:** Consists of a Sodium X type zeolite crystal structure.
- **Primary Application:** Engineered mainly for PSA-based industrial-grade oxygen plants to generate high-purity oxygen.
- **Performance Metrics:** Features a fast adsorption rate and a long service life for consistent operational efficiency.
- **Versatile Utility:** Recognized as a new generation of sodium-based molecular sieve used extensively for medical oxygen supply and various industrial applications.

Property	Unit	JLOX-500	Note
Diameter	mm	1.6-2.5	Beads
Static N ₂ Adsorption	ml/g	≥8.00	1 atm, 25°C, Activated
N ₂ /O ₂ Selectivity	~	≥3.00	1 atm, 25°C
Bulk Density	g/ml	0.61-0.65	Tapped
WaterContent	wt%	≤1.0	KF, 550°C

The background of the entire image is a dense, uniform field of small, spherical, yellowish-tan beads, which are molecular sieves. The beads are tightly packed and fill the entire frame.

MOLECULAR SIEVE

JLOX SERIES

PORTABLE OXYGEN CONCENTRATOR

Molecular Sieve JLOX-101A & JLOX-501A for Oxygen Concentrator

- **Superior Selectivity:** Both models are designed with superior N2/O2 selectivity compared to equivalent products in the market.
- **Efficient Loading:** The high separation coefficient allows for a lower loading amount without sacrificing O2 output or purity.
- **Mechanical Durability:** Engineered to resist swinging pressure, effectively avoiding pulverization and attrition during operation.
- **Advanced Capacity:** Features a relatively high density that ensures an advanced adsorption capacity per unit length of the bed.
- **Precision Manufacturing:** Particle size and bead distribution are strictly controlled to ensure uniformity across the adsorption bed.
- **Operational Stability:** The uniform structure contributes to a stable stream output and excellent dynamic adsorption capacity.



Product	JLOX-101A	JLOX-501A
Cation	Lithium	Sodium
Bead Size	0.4-0.8 mm	0.4-0.8 mm
N ₂ /O ₂ Selectivity ^①	6.2	3.0
Static N ₂ Adsorption ^①	≥22.00 ml/g	≥8.00 ml/g
Bulk Density (Trapped)	0.60-0.64 g/ml	0.61-0.65 g/ml
Air/Oxygen Ratio	10-14	10-14
Adsorption Pressure	1.0-2.0 bar	1.4-2.0 bar



THANK YOU

Luoyang Jalon Micro-Nano New Materials Co., Ltd.

Tel: +86-379-6989 5719

Email: info@jalonzeolite.com

Address: Junmin Road, Industrial Cluster District, Yanshi, Henan, China, 471900.

Jalon (Thailand) Co., Ltd.

Tel: +66 61 390 8679

Email: info@jalon.co.th

Address: No.890/68, Mu 3, Khao Khan Song, Si Racha, Chon Buri, Thailand, 20110