

SEPARATION TECHNOLOGIES

ION EXCHANGE RESINS

DUOLITE A 161

PRODUCT DATA SHEET



DESCRIPTION

DUOLITE A 161 is macroporous type 1 strong base Anion Exchange Resin. Its polystyrene matrix is prepared according to a patented special process which gives a homogeneous structure with flexible bridging obtained through careful crosslinking.

The porosity of Duolite A 161 has been optimised to make it particularly resistant to osmotic shocks and attrition. Performance and stability of Duolite A 161 have been proven through many years of use in several installations particularly in continuous ion exchange process and high speed condensate treatment including Triobed. The physical & chemical properties are tested by the method specified in IS : 7330-1988

PROPERTIES

Matrix _____	Strene DVB copolymer
Functional groups _____	- N ⁺ (CH ₃) ₃ Min 95% of TEC
Physical form _____	Opaque Beads.
Ionic form as supplied _____	See " Available grades "
Total exchange capacity _____	Min 1.15 eq / L (Cl ⁻ form)
Moisture holding capacity _____	53 -58% (Cl ⁻ form)
Specific gravity _____	About 1.08 (Cl ⁻ form)
Shipping weight _____	About 700 g / L (Cl ⁻ form)
Particle size _____	See " Available Grades "
Maximum reversible swelling _____	Cl ⁻ ® OH ⁻ : 18 % Maximum.
Operating pH range _____	0 - 14
Chemical stability _____	Insoluble in dilute acids or bases and common solvents.

Please refer our Technical Data Sheet on Duolite storage and handling instructions for storage of resin.

SUGGESTED OPERATING CONDITIONS

Maximum operating temperature _____	60°C (OH ⁻), 100°C (Cl ⁻)
Minimum bed depth _____	700 mm
Service flow rate _____	5 to 40 BV* / hr
Maximum linear velocity _____	50 m / hr
Regenerant _____	NaOH
Level _____	30 to 150 g / L
Flow rate _____	2 to 8 BV / hr (minimum contact time 30 minutes)
Concentration _____	3% to 5%
Slow rinse _____	Minimum 2 BV at regeneration flow rate
Fast rinse _____	Same as service flow rate.

* 1 BV (Bed Volume) = 1 m³ solution per m³ resin

Please refer the check list provided for safe operation and longer durability of resin.

AVOID EXCESSIVE ORGANICS ENTERING DUOLITE IER FOR LONG & HEALTHY LIFE

AVAILABLE GRADES

Name	Ionic form	Particle* size mm	Applications
DUOLITE A 161	Cl ⁻	0.3 - 1.2	Conventional uses
DULITE A 161 C	Cl ⁻	0.4 - 1.2	High flow rate condensate polishing in single or mixed bed. Grading adjusted for minimal pressure loss and good separation in mixed bed
DUOLITE A 161 L	Cl ⁻	0.8 to 1.2	DUOBED (stratified bed) operation together with Duolite A 378 D
DUOLITE A 161 TR	SO ₄ ^{- -}	0.4 TO 0.85	TRIOBED operation, together with Duolite C 26 TR and Duolite S 3 TR.

90% of the beads within the specified range.

APPLICATIONS

Due to its exceptional physical and chemical stability, Duolite A 161 is particularly recommended for regenerable mixed bed condensate polishing applications, production of ultrapure water for semiconductor manufacturing and continuous process

PERFORMANCE

Operating capacity and silica leakage

The engineering data sheet provide information to calculate operating capacity and silica leakage of Duolite A 161 used for water treatment.

N.B: In condensate polishing applications, Duolite A 161 can be operated at flow rates up to 120 m/h or 120 BV /h

Organic matter

Duolite A 161 has the same affinity for most organic anions as Duolite A 101. This is better than many other geltype 1 resins of "clear" structure, however Duolite A 161 should not be used for treatment of waters having a high organics/ total anion ratio.

Oxidising and reducing agents

Duolite A 161 is not subject to degradation by concentrations of oxidising or reducing agents normally found in water treatment.

Physical strength

Duolite A 161 is extremely resistant to attrition. It has been originally designed for use in continuous ion exchange systems with resin transfer. In such systems, as well as in high flow condensate polishing, resin wear is kept a minimum and Duolite A 161 has been found more stable than most type 1 resins available.

Resistance to osmotic shock

The porosity of Duolite A 161 has been designed to offer a maximum stability under strong osmotic shocks. in a routine quality test. To be released for sale, the resin must show less than a few cracked beads after the test. It is therefore one of the toughest anion exchange resin ever made.

PERFORMANCE

The operating capacity & silica leakage depends on several factors such as regeneration level and water quality. The data to calculate the operating capacity and the ionic leakage are given in the Engineering Data Sheets.

LIMITS OF USE

Various grades of Duolite A 161 are suitable for industrial uses. For all other specific applications such as pharmaceutical, food processing, or potable water applications, it is recommended that all potential users seek advice from Auchtel Products Ltd. in order to determine the best resin choice and optimum operating conditions.

HYDRAULIC CHARACTERISTICS

Figure 1 shows the bed expansion of standard Duolite A 161, as a function of backwash flow rate and temperature

Figure 2 shows the pressure drop data for standard grade Duolite A 161, as a function of service flow rate and water temperature. Pressure drop data are valid at the start of the service run with a clear water and a correctly classified bed.

Figure 1

BED EXPANSION

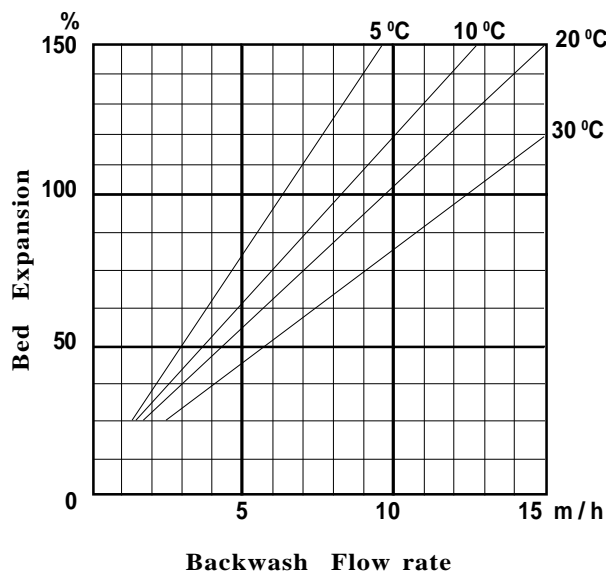
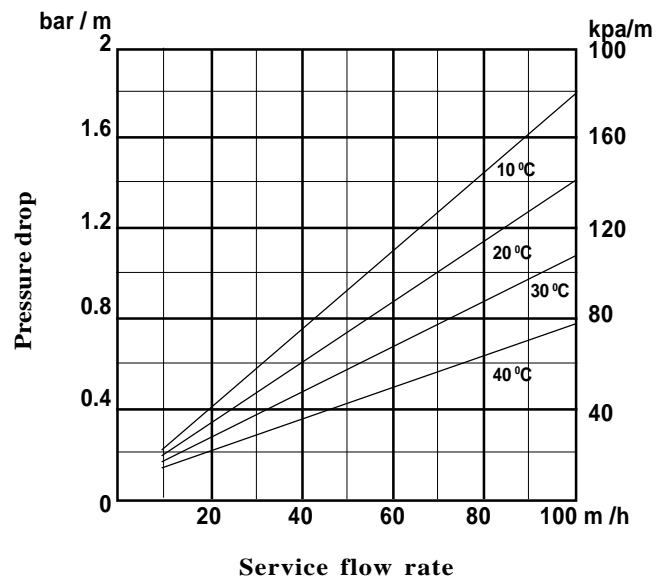


Figure 2

PRESSURE DROP



DUOLITE A 161

STRONG BASE ANION EXCHANGE RESIN

For further information please contact your nearest Auchtel representative

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SAFE HANDLING INFORMATION

A Material Safety Data Sheet is available for each product. To obtain a copy contact your Auchtel representative.

CAUTION

Acidic and basic regenerant solutions are corrosive and should be handled in a manner that will prevent eye and skin contact. Nitric acid and other strong oxidizing agents can cause explosive type reactions when mixed with Ion Exchange Resins. Proper design of process equipment to prevent rapid buildup of pressure is necessary if use of an oxidizing agent such as nitric acid is contemplated. Before using strong oxidizing agents in contact with Ion Exchange Resins, consult sources knowledgeable in the handling of these materials.

The suggestions and data in this bulletin are based on information we believe to be reliable. They are offered in good faith, but without guarantee, as conditions and methods of use of our products are beyond our control. We recommend that the prospective user determine the suitability of our materials and suggestions before adopting them on a commercial scale. The Company maintains a policy of continuous development and reserve the right to amend any specification without notice. DUOLITE is a trademark of Rohm and Hass Company, Philadelphia, U.S.A. and Auchtel Products Ltd. are users of the same in India.

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