



## Product Data Sheet

### **AmberLite™ SD-2 Polymeric Adsorbent**

Food-grade, Macroporous, Adsorbent Resin for Sucrose and Other Sweetener Applications

#### **Description**

AmberLite™ SD-2 Polymeric Adsorbent has a high specific surface area and high porosity and exceptional mechanical, thermal, and chemical stability. It is specially designed for decolorization as well as taste and odor removal in sweetener applications. AmberLite™ SD-2 complies with the U.S. Food, Drug and Cosmetic Act as amended under Food Additive Regulation 21 CFR 173.25.

This adsorbent has similar pore size distribution and adsorption properties to activated carbon so that it can be used as a direct replacement for carbon in many sweetener applications. AmberLite™ SD-2 has the additional advantage of containing macropores which improve the bulk movement of solutions in and out of the bead. The resulting improvement in kinetics leads to faster production flowrates and smaller beds.

The adsorbent is lightly functionalized with weak base groups to provide a hydrophilic character that gives the adsorbent good wettability and compatibility with acid and base regenerants. Regeneration requires only dilute caustic, dilute acid, and hot water.

More detailed information on the use of AmberLite™ SD-2 adsorbent for a particular application can be obtained from your DuPont technical contact or sales representative.

#### **Applications**

- Sweetener decolorization
- Taste and odor removal

## Typical Properties

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### Physical Properties

|                  |   |
|------------------|---|
| Copolymer        | Styrene-divinylbenzene                        |
| Matrix           | Macroporous                                   |
| Type             | Adsorbent                                     |
| Functional Group | Tertiary amine                                |
| Physical Form    | Tan to reddish brown, opaque, spherical beads |

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### Nitrogen BET

|                       |                        |
|-----------------------|------------------------|
| Surface Area          | ~800 m <sup>2</sup> /g |
| Average Pore Diameter | ~50 Å                  |

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### Chemical Properties

|                          |                |
|--------------------------|----------------|
| Ionic Form as Shipped    | Free base (FB) |
| Dry Weight Capacity      | 0.8 eq/kg      |
| Water Retention Capacity | 50 – 62%       |

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### Particle Size <sup>§</sup>

|           |         |
|-----------|---------|
| < 105 µm  | ≤ 0.05% |
| < 210 µm  | ≤ 0.3%  |
| < 300 µm  | ≤ 1%    |
| > 1180 µm | ≤ 2%    |

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### Stability

|          |               |
|----------|---------------|
| Swelling | FB → HCl ≤ 5% |
|----------|---------------|

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### Density

|                  |           |
|------------------|-----------|
| Particle Density | 1.04 g/mL |
| Shipping Weight  | 670 g/L   |

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<sup>§</sup> For additional particle size information, please refer to the [Particle Size Distribution Cross Reference Chart](#) (Form No. 45-D00954-en).

## Suggested Operating Conditions

|                             |  |
|-----------------------------|--|
| Operating Temperature Range | 50 – 85°C (122 – 185°F)  |
| pH Range                    | 3 – 8.5  |
| Flowrates                   |  |
| Service                     | 2 – 6 BV*/h  |
| Regeneration                | 2 – 6 BV/h   |
| Regenerants                 | <ul style="list-style-type: none"> <li>• NaOH</li> <li>• HCl</li> <li>• H<sub>2</sub>SO<sub>4</sub></li> </ul> |

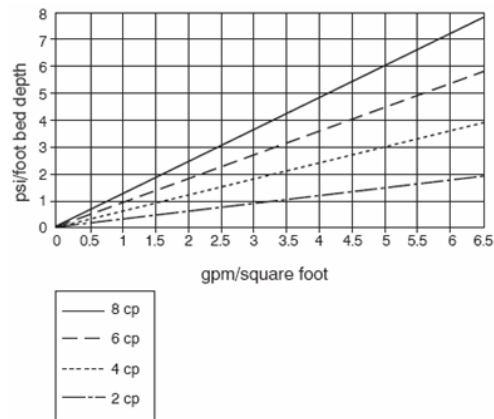
\* 1 BV (Bed Volume) = 1 m<sup>3</sup> solution per m<sup>3</sup> resin or 7.5 gal per ft<sup>3</sup> resin

## Hydraulic Characteristics

Estimated pressure drop for AmberLite™ SD-2 Polymeric Adsorbent as a function of service flowrate and viscosity is shown in Figure 1. These pressure drop expectations are valid at the start of the service run with clean feed and a well-classified bed.

**Figure 1: Pressure Drop**

Viscosity = 2 – 8 cP



## Product Stewardship

DuPont has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with DuPont products—from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

## Customer Notice

DuPont strongly encourages its customers to review both their manufacturing processes and their applications of DuPont products from the standpoint of human health and environmental quality to ensure that DuPont products are not used in ways for which they are not intended or tested. DuPont personnel are available to answer your questions and to provide reasonable technical support. DuPont product literature, including safety data sheets, should be consulted prior to use of DuPont products. Current safety data sheets are available from DuPont.

Please be aware of the following:

- **WARNING:** Oxidizing agents such as nitric acid attack organic ion exchange resins under certain conditions. This could lead to anything from slight resin degradation to a violent exothermic reaction (explosion). Before using strong oxidizing agents, consult sources knowledgeable in handling such materials.

### Have a question? Contact us at:

[www.dupont.com/water/contact-us](http://www.dupont.com/water/contact-us)

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