

**AMBERLYST™ 39WET**

Industrial Grade Strongly Acidic Catalyst

**Introduction**

AMBERLYST 39WET is a macroreticular, sulfonic acid polymeric catalyst with relatively low crosslinked structure. Its continuous open pore structure makes it an excellent heterogeneous acid catalyst for a wide variety of organic reactions. The polymer structure of AMBERLYST 39WET is extremely resistant to breakdown by osmotic, mechanical and thermal shock.

AMBERLYST 39WET can be used directly in aqueous systems or in organic media after conditioning with a water miscible solvent.

AMBERLYST 39WET has the optimal balance of surface area, acid capacity and pore diameter to make it the catalyst of choice for most esterification reactions.

**Properties**

|                             |                                                   |
|-----------------------------|---------------------------------------------------|
| Physical form               | Opaque, spherical                                 |
| Ionic form as shipped       | Hydrogen                                          |
| Concentration of acid sites | ≥ 1.15 eq/L<br>≥ 5.00 eq/kg                       |
| Moisture holding capacity   | 60 to 66% (H <sup>+</sup> form)                   |
| Shipping weight             | 735 g/L (45.9 lbs/ft <sup>3</sup> )               |
| Particle size               |                                                   |
| Uniformity coefficient      | ≤ 1.50                                            |
| Fines contents              | < 0.425 mm: 0.5% max                              |
| Coarse beads                | > 1.180 mm: 10.0% max                             |
| Nitrogen BET                |                                                   |
| Surface area                | 32 m <sup>2</sup> /g                              |
| Average pore diameter       | 230 Å                                             |
| Total pore volume           | 0.20 ml/g                                         |
| Shrinkage                   | Water to methanol: 14%<br>Water to n-Butanol: 12% |

**Suggested Operating Conditions**

|                               |                                |
|-------------------------------|--------------------------------|
| Maximum operating temperature | 130°C (265 °F)                 |
| Minimum bed depth             | 60 cm (24 inches)              |
| Operating flow rate           | 1 to 5 BV*/h (LHSV)            |
| Pressure drop limitation      | 1 bar (15 psig) across the bed |

**Hydraulic Characteristics**

Figure 1 shows the bed expansion of AMBERLYST 39WET as a function of backwash flow rate and water temperature.

Figure 2 shows the pressure drop data for AMBERLYST 39WET as a function of service flow rate and water temperature.

Figure 1: Bed expansion

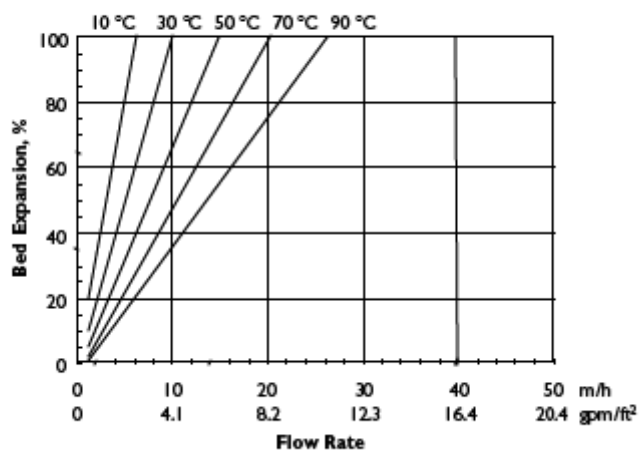
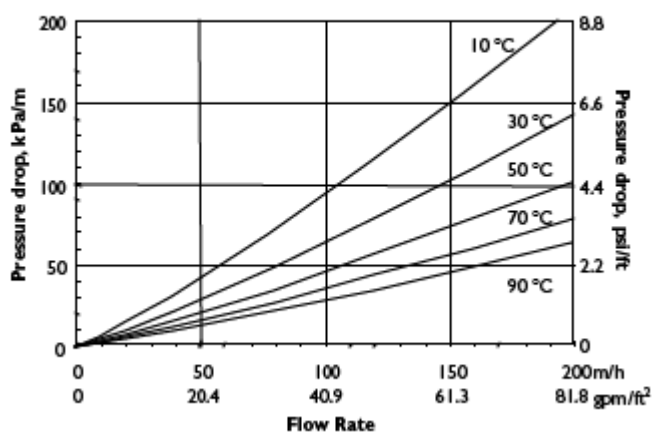


Figure 2: Pressure drop



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