



Water & Process Solutions

AMBERLYST™ Polymeric Catalysts



Source: Thinkstock



Application & Product name	Type	Matrix ^[3]	Surface Area ^[1] [m ² /g]	Ave. Pore Diameter [Å]	Min. Capacity [eq/kg ^[2]]	Min. Capacity [eq/L]	Moisture Content [%]
Etherification (MTBE, ETBE, TAME)							
AMBERLYST 15Wet	Strong acid	MR ^[3]	53	300	4.70	1.70	52-57
AMBERLYST 35Wet	Strong acid	MR	50	300	5.20	1.90	51-57
DOWEX MONOSPHERE M-31	Strong acid	MR	30	200	4.70	1.70	50-54
Dimerization (Isooctane)							
AMBERLYST 35Wet	Strong acid	MR	50	300	5.20	1.90	51-57
AMBERLYST 36Wet	Strong acid	MR	33	240	5.40	1.90	53-59
Phenol Purification							
AMBERLYST 16Wet	Strong acid	MR	30	250	4.80	1.70	52-58
AMBERLYST 36Wet	Strong acid	MR	33	240	5.40	1.90	53-59
Phenol Alkylation							
AMBERLYST 15Dry	Strong acid	MR	53	300	4.70	-	≤1.6
AMBERLYST 35Dry	Strong acid	MR	50	300	5.00	-	≤3.0
AMBERLYST 36Dry	Strong acid	MR	33	240	5.40	-	≤1.65
DOWEX MONOSPHERE DR-2030	Strong acid	MR	30	200	4.70	-	≤3.0
Condensation (Bisphenol A)							
AMBERLYST 31Wet	Strong acid	Gel	-	-	4.80	1.35	63-67
AMBERLYST 33	Strong acid	Gel	-	-	4.80	1.35	64-68
AMBERLYST 121Wet	Strong acid	Gel	-	-	4.80	0.73	74-84
AMBERLYST 131Wet	Strong acid	Gel	-	-	4.80	1.35	62-68
Hydrogenation (MIBK, TAME)							
AMBERLYST CH10	Strong acid (Pd)	MR	33	240	4.80	1.60	52-58
AMBERLYST CH28	Strong acid (Pd)	MR	36	260	4.80	1.60	52-58
AMBERLYST CH43	Strong acid (Pd)	MR	35	250	-	1.80	51-57
Olefin hydration (TBA, IPA, SBA)							
AMBERLYST 15Wet	Strong acid	MR	53	300	4.70	1.70	52-57
AMBERLYST 70	Strong acid	MR	36	220	2.65	0.95	52-57
Esterification (Acetates, Acrylates, Fatty Acid Esters)							
AMBERLYST 15Wet	Strong acid	MR	53	300	4.70	1.70	52-57
AMBERLYST 16Wet	Strong acid	MR	30	250	4.80	1.70	52-58
AMBERLYST 36Wet	Strong acid	MR	33	240	5.40	1.90	53-59
AMBERLYST 39Wet	Strong acid	MR	32	230	5.00	1.15	60-66
AMBERLYST 46	Strong acid	MR	75	235	0.43	0.8	26-36
AMBERLYST 70	Strong acid	MR	36	220	2.65	0.95	52-57
AMBERLYST 131Wet	Strong acid	Gel	-	-	4.80	1.35	62-68
Base Catalysed Reactions							
AMBERLYST A21	Weak base	MR	35	110	4.60	1.30	54-60
AMBERLYST A26 OH	Strong base Type 1	MR	30	290	4.20	0.80	66-75

Footnotes: [1] Nitrogen BET [2] Dry weight [3] MR = MacroReticular [4] Free base form [5] OH form

AMBERLYST™ Polymeric Catalysts

Shipping Weight [g/L] [lb/ft ³]		Recommended Max. Op. Temperature [°C] [°F]		Remarks
770	48.0	120	250	Etherification catalyst. Extremely resistant to breakdown by osmotic and mechanical shock.
800	50.0	150	300	Excellent etherification catalyst. Higher acid strength, better performance, and longer lifetime than conventional catalysts.
760	47.0	120	250	Uniform particle size catalyst offering reduced pressure drop and higher throughput for increased production.
800	50.0	150	300	Dimerization catalyst with high activity and high temperature stability.
800	50.0	150	300	Dimerization catalyst that combines high activity, high temperature stability, and good resistance to polymer fouling.
780	48.7	130	265	Condensation catalyst. Its low crosslinking degree provides a high resistance to polymer fouling.
800	50.0	150	300	Higher exchange capacity and improved thermal stability compared to conventional catalysts.
610	38.0	120	250	Alkylation catalyst. Excellent for use in non-aqueous systems where the presence of water has a negative effect on catalyst activity.
560	35.0	150	300	Alkylation catalyst with higher acidity and improved thermal stability compared to conventional catalysts.
770	48.0	150	300	Premium alkylation catalyst. In addition to its high thermal stability, its low crosslinking degree confers a high resistance to organic fouling.
590	37.0	120	250	Uniform particle size dry catalyst offering reduced pressure drop and increased productivity.
770	48.0	130	265	Excellent lifetime, good selectivity, and high reactivity.
770	48.0	130	265	Very low acid leachables, designed for high purity BPA production.
730	45.5	130	265	Low cross-linked catalyst that offers optimum productivity with good resistance to polymer fouling.
740	46.0	130	265	Excellent catalyst with uniform particle size which confers enhanced hydraulic properties and reactivity compared to conventional catalysts.
790	49.3	130	265	Bifunctional catalyst with acid and metal functionality; contains 1.0 g/L Pd. Used primarily in TAME production to selectively hydrogenate diolefins.
790	49.3	130	265	Bifunctional catalyst with acid and metal functionality; contains 2.8 g/L Pd. Used primarily for MIBK production
790	49.3	140	285	Bifunctional catalyst with acid and metal functionality; contains 2.8 g/L Pd. Enhanced acid strength for increased conversion and MIBK yield.
770	48.0	120	250	Conventional hydration catalyst suitable for reactive olefins such as isobutylene.
770	48.0	190	375	Patented catalyst with the highest thermal stability on the market. Ideal for SBA and IPA production.
770	48.0	120	250	Catalyst for low molecular weight acetate esters.
780	48.7	130	265	Best suitable catalyst for medium molecular weight esters. Used in industrial production of butyl acrylate and methyl methacrylate.
800	50.0	150	300	Highly active catalyst with high temperature stability. Well suited for fatty acid esterification.
735	45.9	130	265	Esterification catalyst for higher molecular weight compounds that diffuse slowly into conventional catalysts.
600	37.4	120	250	Patented esterification catalyst that minimizes by-product formation such as ethers or olefins.
770	48.0	190	375	Patented catalyst stable up to 190°C. Very well suited for high molecular weight esters and the esterification of diols and polyols.
740	46.0	130	265	Excellent catalyst for low molecular weight esters. Used for ethyl acrylate production.
660	41.2	100[4]	210	Catalyst for silane disproportionation and acid removal from aqueous and non-aqueous streams.
675	42.1	60[5]	140	Excellent choice for aldol condensation. High resistance to organic fouling.

NOTICE: No freedom from infringement of any patent owned by Dow or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, Customer is responsible for determining whether products and the information in this document are appropriate for Customer's use and for ensuring that Customer's workplace and disposal practices are in compliance with applicable laws and other government enactments. The product shown in this literature may not be available for sale and/or available in all geographies where Dow is represented. The claims made may not have been approved for use in all countries. Dow assumes no obligation or liability for the information in this document. References to "Dow" or the "Company" mean the Dow legal entity selling the products to Customer unless otherwise expressly noted. NO WARRANTIES ARE GIVEN; ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED.

Published May 2011

