NGC
Next Generation Chemical

NGC Ester polyester polyols

Polyester polyols for reactive hot-melt (PUR) adhesives: crystalline, amorphous and liquid grades to build your blend. Plus aliphatic grades for CASE and aromatic grades for rigid PUR and PIR foam. 57 grades, made by our manufacturing partners and supplied in the UK and Europe by Next Generation Chemical.

Reactive hot-melt adhesives | Coatings | Adhesives | Sealants | Elastomers | TPU | Rigid PUR and PIR



OUR RANGE

Three families, one supplier

Every grade is a saturated polyester polyol made to a tight OH value and acid value, so your system runs the same from batch to batch.

Polyester polyols for reactive hot-melt adhesives

Crystalline, fast-set, amorphous and liquid grades to build PUR hot melts for wood, edgebanding, textiles, footwear, laminating and assembly. 14 new grades, plus 4 support grades from the main range. See pages 3 to 5.

Aliphatic polyester polyols, for CASE

Give strength, abrasion resistance and oil resistance to elastomers, footwear soles, TPU, synthetic leather, coatings, adhesives, sealants and PU dispersions. 22 grades, OH 38 to 118 mg KOH/g.

Aromatic polyester polyols, for rigid foam

Built for rigid PUR and PIR foam to meet fire rules with less flame retardant. Fine cells give low thermal conductivity with good strength. 21 grades, OH 170 to 360 mg KOH/g.

How to read the tables

- All figures are typical values, not a specification. Hot-melt grade values are confirmed on each TDS. The TDS for each grade is available on request.
- Viscosity is given in mPa·s (cP) at the temperature shown. Compare grades at the same temperature.
- Rigid uses: App = appliance, Spray = spray foam, Disco = discontinuous panel and block, Cont = continuous laminated panel and block, OCF = one-component foam, PUR = PUR systems.

Supply

Drums, IBCs and bulk. Price, packaging, lead time and REACH status confirmed with each quotation. Samples available for trials.



NEW IN ISSUE 2

Polyester polyols for reactive hot-melt adhesives

A reactive (PUR) hot melt is a blend of polyester polyols reacted with MDI. Each type of polyester does a different job. Our hot-melt range gives you all three, so you can build and tune your own adhesive.

CRYSTALLINE

Set and green strength

1,6-hexanediol and 1,4-butanediol adipates. They crystallise as the bond line cools, so the joint sets fast and holds early. Pick by MW: higher MW gives tougher, more elastic films.

AMORPHOUS

Tack and adhesion

Isophthalic/adipic polyester. Adds hot tack and green strength, and helps adhesion to polar substrates such as wood, paper and metal.

LIQUID

Open time and flexibility

Liquid and low-melt adipates. Give longer open time, a softer bond line and better adhesion to plastics. Also use in laminating adhesives.

How to build a reactive hot melt, in plain words

1

Pick the blend

Start with a crystalline grade as the largest part for set speed. Add an amorphous grade for tack and adhesion, and a liquid grade for open time and flexibility.

2

Melt and dry

Melt the polyesters together and dry under vacuum. Water reacts with MDI, so keep it as low as you can.

3

React with MDI

Add MDI at an OH:NCO ratio of about 1:2.2, so the prepolymer ends in free NCO groups. Pack it away from moisture.

4

Apply and cure

The hot melt sets on cooling as the crystalline part freezes, then cures with moisture in the air to its final strength and heat resistance.

General guidance only. Tune the blend and ratio on your own line, and trial before use.

Is your polyester supplier leaving the market?

Send us your current grade and TDS. We match OH value, viscosity, acid value and melting point, and send lab samples for your trial.

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APPLICATIONS

Where PUR hot melts are used

Each line needs a different balance of set speed, open time, green strength, flexibility and heat resistance. These are the usual starting points. Your own trial decides the final blend.



FURNITURE AND PANELS

Edge banding

Bands are pressed onto the board edge at high line speed. The hot melt must grab fast, then resist heat and water after cure.

Fast set: **NGC Ester 76930 HM**
Main crystalline backbone: **NGC Ester 76630 HM**
Tack and adhesion to wood: **NGC Ester 76135 HM**



WINDOWS, DOORS AND FURNITURE

Profile wrapping

Decor foil is wrapped around PVC, aluminium or MDF profiles. Needs open time to follow the shape, then high green strength so edges do not lift.

Crystalline: **NGC Ester 76630 HM, 76620 HM**
Amorphous for green strength: **NGC Ester 76135 HM**
Liquid for open time and plastics: **NGC Ester 74537 HM**



PRINT FINISHING

Bookbinding

Perfect binding needs a thin glue line that sets fast for early trimming, and a spine that stays flexible so the book opens flat.

Crystalline: **NGC Ester 76630 HM, 76637 HM (lower melt viscosity)**
Adhesion to paper: **NGC Ester 76135 HM**



TEXTILES AND VEHICLE INTERIORS

Textile and interior lamination

Fabric laminated to foam, door panels or headliners. The bond line must stay soft and flexible and hold up to heat in the vehicle.

Flexible crystalline: **NGC Ester 76617 HM, 76612 HM**
Liquid and low-melt soft segments: **NGC Ester 74537 HM, 76535 HM, 71145 HM**

Illustrative images. Grade values are on page 5 and on each TDS.

POLYESTER POLYOLS FOR REACTIVE HOT-MELT ADHESIVES

Hot-melt grades

Typical values. Confirmed on each TDS. Melting points are approximate.

Grade and chemistry	OH value mg KOH/g	Acid max	Avg MW g/mol	Viscosity mPa·s at °C	State at 25 °C	Melting point or Tg	Role in the hot melt
Crystalline: set and green strength							
NGC Ester 76630 HM 1,6-hexanediol adipate	28–32	≤ 0.5	3,700	5,500 at 60	Solid (crystalline)	approx 55 °C	Main crystalline backbone; balanced open/set time; high green strength
NGC Ester 76620 HM 1,6-hexanediol adipate	18–22	≤ 1.0	5,600	16,500 at 70	Solid (crystalline)	approx 56 °C	Higher MW; tougher film; longer chains for flexibility
NGC Ester 76617 HM 1,6-hexanediol adipate	14–20	≤ 1.0	6,500	On request	Solid (crystalline)	approx 57 °C	High MW crystalline for textile and flexible bonds
NGC Ester 76612 HM 1,6-hexanediol adipate	10–16	≤ 1.0	8,500	On request	Solid (crystalline)	approx 57 °C	Highest MW crystalline; elastic bond lines
NGC Ester 76637 HM 1,6-hexanediol adipate	35–39	≤ 0.5	3,000	3,000 at 60	Solid (crystalline)	approx 55 °C	Lower MW crystalline; lower melt viscosity
NGC Ester 76656 HM 1,6-hexanediol adipate	53–59	≤ 0.5	2,000	1,100 at 60	Solid (crystalline)	approx 53 °C	Prepolymers; fast crystallising soft segment
NGC Ester 74445 HM 1,4-butanediol adipate	43–47	≤ 0.5	2,500	2,200 at 60	Solid (crystalline)	approx 55 °C	Contact and footwear adhesives; fast crystallisation
NGC Ester 74457 HM 1,4-butanediol adipate	54–58	≤ 0.5	2,000	1,400 at 60	Solid (crystalline)	approx 55 °C	Contact adhesives; TPU-type adhesives
NGC Ester 72235 HM Ethylene glycol adipate	33–37	≤ 0.5	3,200	3,500 at 60	Solid	approx 50 °C	Crystalline modifier
Crystalline, fast-set							
NGC Ester 76930 HM 1,6-hexanediol long-chain diacid polyester	28–32	≤ 0.5	3,750	2,400 at 80	Solid (highly crystalline)	approx 70 °C	Very fast setting; edgebanding and high line speed
Amorphous							
NGC Ester 76135 HM Isophthalic/adipic acid hexanediol polyester	33–37	≤ 0.5	3,200	7,600 at 60	Solid	Tg on TDS	Raises green strength and adhesion to polar substrates
Liquid and low-melt							
NGC Ester 74537 HM Butanediol/neopentyl glycol adipate	35–39	≤ 0.5	3,000	10,000 at 40	Liquid	Tg < −40 °C	Longer open time; flexibility; adhesion to plastics
NGC Ester 76535 HM Hexanediol/neopentyl glycol adipate	32–38	≤ 0.5	3,200	12,000 at 40	Paste/solid	Tg on TDS	Soft segment; open-time control
NGC Ester 71145 HM Diethylene glycol adipate	43–47	≤ 0.5	2,500	12,400 at 25	Liquid	Tg < −40 °C	Low-cost liquid soft segment; laminating adhesives
Support grades from the main range							
NGC Ester 72140B Aliphatic polyester	38–42	< 0.5	2,800	2,700–3,300 at 60	Liquid	On TDS	Liquid soft segment
NGC Ester 72156B Aliphatic polyester	50–55	< 0.5	2,250	1,350–1,650 at 60	—	On TDS	Adhesives and TPU-type adhesives
NGC Ester 72120B Aliphatic polyester	108–116	< 0.5	1,000	100–300 at 75	—	On TDS	Low MW; tack and hardness tuning
NGC Ester 74310NH Aliphatic polyester	106–118	< 1.0	1,200	500–800 at 75	—	On TDS	Coatings and adhesives; PUD

Grades marked HM are new to the range. Support grades are also listed in the CASE table. Viscosity is given at the temperature shown; compare grades at the same temperature. Samples available for trials.

ALIPHATIC POLYESTER POLYOLS

CASE grades

Grade	OH value mg KOH/g	Acid value mg KOH/g	Viscosity mPa·s at °C	Avg MW g/mol	Key applications
Footwear and microcellular elastomers					
NGC Ester 72255	55–59	≤ 1.0	4,200–5,000 at 35	2,000	Footwear
NGC Ester 72250	50–55	< 0.8	4,500–5,500 at 35	2,150	Footwear
NGC Ester 72245T	44–48	< 1.0	6,800–7,800 at 35	2,600	Footwear
NGC Ester 72265T	64–68	< 1.0	4,000–4,600 at 35	2,000	Footwear
NGC Ester 71165DB	60–68	< 1.0	9,400–12,000 at 35	2,010	Footwear
NGC Ester 74050T	54–58	< 1.0	7,600–8,600 at 35	2,100	Footwear
NGC Ester 74055	54–58	< 0.7	2,900–3,600 at 35	2,000	Footwear, synthetic leather
NGC Ester 73272	70–75	< 0.8	2,000–4,000 at 35	1,550	Low-density, high-hardness sandals; adhesives
NGC Ester 73160	58–63	< 1.6	19,000–24,000 at 25	2,580	Footwear, hot-cast elastomer
TPU and synthetic leather					
NGC Ester 71255B	54–58	< 0.5	2,000–2,500 at 50	2,050	TPU resins, footwear, synthetic leather
NGC Ester 73255B	54–58	< 1.0	6,000–7,000 at 35	2,000	TPU and footwear, better hydrolysis
NGC Ester 72120B	108–116	< 0.5	100–300 at 75	1,000	TPU resins, adhesives, synthetic leather
NGC Ester 72156B	50–55	< 0.5	1,350–1,650 at 60	2,250	TPU resins, adhesives, synthetic leather
NGC Ester 72140B	38–42	< 0.5	2,700–3,300 at 60	2,800	Adhesives and TPU
NGC Ester 71156	54–58	≤ 1.0	500–700 at 75	2,000	TPU, synthetic leather
Coatings, adhesives, sealants and PUD					
NGC Ester 74055NP	55–60	< 0.5	1,500–3,500 at 35	2,000	CASE, dispersions, UV stable
NGC Ester 74256NH	53–57	< 0.5	6,000–8,000 at 60	2,000	Coatings, adhesives, PUD
NGC Ester 74310NH	106–118	< 1.0	500–800 at 75	1,200	Coatings, adhesives, PUD
NGC Ester 75255MPD	55–60	< 1.0	On request	2,000	High hydrolysis: coatings, adhesives, PUD, microcellular
NGC Ester 75255PO	55–60	< 1.0	7,000–8,000 at 35	2,000	High hydrolysis: coatings, adhesives, PUD, microcellular
NGC Ester 76113	55–60	< 1.0	7,000–8,000 at 35	2,000	Medium hydrolysis: coatings, adhesives, water-based PUD
NGC Ester 72120-55	50–60	< 1.5	800–1,200 at 75	2,050	CASE

AROMATIC POLYESTER POLYOLS

Rigid PUR and PIR grades

Grade	Uses	OH value mg KOH/g	Viscosity mPa·s, 25 °C	Acid value mg KOH/g	f	Avg MW	Key performance
NGC Ester 78315	App, Spray, Cont, PUR	310	2,600	2.4	2	360	General rigid foam, good thermal efficiency
NGC Ester 77310	App, Spray, Disco, Cont, PUR	315	2,200	< 2.0	2	356	Good flow, high fire, works with most blowing agents
NGC Ester 78235	App, Cont, PUR	235	3,000	< 1.0	2	480	Good flow, HFC and HC compatible
NGC Ester 78241	App, Cont, PUR	240	3,000	< 2.5	2	470	Thermal efficiency, green strength, HC and HFC
NGC Ester 78235TA	Spray, Disco, Cont, PUR	235	3,500	< 1.0	2	480	High fire, HC and HFC compatible
NGC Ester 78250TA	Spray, Disco, Cont	240	4,000	< 1.0	2	470	High fire at medium-high index PIR
NGC Ester 79240TA	Spray, Cont, PUR	240	8,500	≤ 1.5	2.3	540	High fire continuous PIR, better adhesion
NGC Ester 78245	Disco, Cont, PUR	245	11,000	< 1.5	2	460	High fire at medium-high index PIR
NGC Ester 79235	App, Disco, Cont, PUR	240	9,500	< 1.0	2.7	640	Disco panel and block, PIR
NGC Ester 79285	Spray, Disco, Cont	300	5,000	< 1.0	2.3	430	Disco sandwich panel and block, PIR
NGC Ester 79300	Spray, Cont, PUR	300	5,500	< 1.0	2	375	ASTM E84 class, spray and PIR boardstock
NGC Ester 7300BR	App, Disco, Cont, PUR	300	9,500	< 1.0	3	560	Brominated polyester polyol
NGC Ester 79350	Spray, Disco, Cont, PUR	350	3,000	< 1.0	2.5	400	Strong and good fire in low-index PIR and PUR
NGC Ester 79360	Disco, Cont, PUR	360	9,000	< 1.0	2.4	375	Strong and good fire in low-index PIR and PUR
NGC Ester 72350	Disco, Cont, PUR	350	5,500	< 1.0	3	480	Strong, good fire, PUR hybrid
NGC Ester 77350	Disco, PUR	350	5,000	< 1.5	2.2	352	Strong, good fire, PUR hybrid
NGC Ester 79250	Spray, OCF, PUR	250	5,500	< 1.0	2	450	1K and 2K foam to DIN 4102 B1
NGC Ester 78190K	OCF	190	3,000	< 1.5	2	590	1K foam to DIN 4102 B2
NGC Ester 78175	Cont	170	3,000	< 0.8	2	660	PIR metal panel; flexible foam textile bonding
NGC Ester 7270FCO	Spray, Disco, Cont, PUR	270	450	< 1.5	—	—	Adhesion, less friability in water-blown foam
NGC Ester 72190AP	Spray, Disco, Cont, OCF	190	1,000	≤ 1.0	2.1	620	Viscosity reducer and adhesion promoter

QUICK PICKS

Where to start

You make	Start with	Why
Reactive hot melt, general wood and assembly	**NGC Ester 76630 HM + 76135 HM + 74537 HM**	Crystalline backbone, amorphous for tack, liquid for open time
Edgebanding, high line speed	**NGC Ester 76930 HM, NGC Ester 76630 HM**	Very fast setting crystalline grades
Textile and flexible bonds	**NGC Ester 76617 HM, NGC Ester 76612 HM**	High MW crystalline for elastic bond lines
Contact and footwear adhesives	**NGC Ester 74445 HM, NGC Ester 74457 HM**	Butanediol adipates, fast crystallisation
PIR boardstock and continuous panels	**NGC Ester 78235, NGC Ester 78241**	OH 235–240, 3,000 mPa·s, good flow, pentane compatible
High-fire continuous PIR	**NGC Ester 78250TA, NGC Ester 79240TA, NGC Ester 78245**	Fire performance at medium-high index
Discontinuous panels and blocks	**NGC Ester 79285, NGC Ester 79235**	Made for disco PIR lamination
Spray foam	**NGC Ester 79300, NGC Ester 77310**	ASTM E84 class; good flow
Appliance and general rigid	**NGC Ester 78315, NGC Ester 77310**	OH 310–315, low viscosity, good thermal efficiency
Low-index PIR and PUR	**NGC Ester 79350, NGC Ester 79360**	Strength with good fire behaviour
One-component foam	**NGC Ester 79250, NGC Ester 78190K**	DIN 4102 B1 and B2
Footwear soles	**NGC Ester 72255, NGC Ester 72250, NGC Ester 74050T**	Proven microcellular grades
TPU	**NGC Ester 71255B, NGC Ester 72156B**	Low acid value, steady reactivity
Adhesives	**NGC Ester 72140B, NGC Ester 72120B**	High and low MW for strength or tack
Coatings and PUD	**NGC Ester 75255PO, NGC Ester 74055NP**	Hydrolysis resistance; UV stable

Is your polyester supplier leaving the market? Matching a grade you use today

Send us your current grade and TDS. We match OH value, viscosity, acid value and functionality, then send a sample and TDS for your trial.

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