



Nord Composites Italia is part of Nord Composites Group and it belongs to the Holding Gerard Lavens that with a total turn-over of around 100 Million Euro represents an important reality within the European Chemical Industry.

The Nord Composites Group is composed by Companies operating with different productive units located in France, England and Italy that are integrated each other respecting severe quality standards and satisfying the always more stringent requests of the main users at European level.

The Nord Composites Italia factory - one of the most technologically advanced in Europe in the field of polyesters chemistry - has got a surface of 35.000 square meters and it is located in Monfalcone in the North East of Italy. Head Quarter, Laboratories, Administration and Commercial Departments are all based at the manufacturing site.

In order to ensure and guarantee an accurate quality constancy of its productions, all manufacturing operations carried out in Nord Composites Italia, from the dosing of raw materials into



the reactors to the finishing, are constantly monitored and controlled satisfying the most severe certification standards.

Nord Composites Italia has highly qualified Laboratories and special measuring equipment for all quality controls, from raw materials to finished products.

Nord Composites Italia and its management operate with the maximum responsibility towards the health and safety of its own operators, of the customers and the environment, keeping the satisfaction of its shareholders as one of the main priorities in its day by day activity.

Nord Composites Italia has built up a vast experience in the development and production of POLYESTER POLYOLS for the Polyurethane Industries.

Inside this catalogue it is possible to find the main technical features and specifications of these products.

#### **OUR PRODUCTS**

#### ADICROL

**Polyester polyols** 

ADISOL Polyester polyols solutions **POLYESTER POLYOLS FOR POLYURETHANES** 

### **ADICROL - ADISOL**

**Product guide** 

#### **MAIN APPLICATIONS**

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POLYESTER POLYOLS FOR PIGMENT PASTES

10

| Application  | FLEXIE           |                           |          |            |           |             |                                       |               |              |  |  |  |  |
|--------------|------------------|---------------------------|----------|------------|-----------|-------------|---------------------------------------|---------------|--------------|--|--|--|--|
|              | Acids/Anhydrides | Main glycols<br>Structure |          | Appearance | OH number | Acid number | Brookfield viscosity<br>(temperature) | Water content | Hazen colour |  |  |  |  |
| Code         |                  |                           |          |            | mg KOH/g  | mg KOH/g    | mPa∙s                                 | %             |              |  |  |  |  |
| ADICROL R 60 | Aliphatic        | DEG                       | Branched | Liquid     | 59 - 63   | ≤ 1,7       | 9500 - 10500<br>(35°C)                | ≤ 0,1         | ≤ 150        |  |  |  |  |

Used in flexible slabstock foam production, mainly for textile industry applications (e.g. flame lamination).

Field of use

#### Application

**RIGID PU FOAMS** 

|                 | Acids/Anhydrides       | Main glycols | Structure | Appearance | OH number | Acid number | Brookfield viscosity<br>(temperature) | Water content | Hazen colour     |  |
|-----------------|------------------------|--------------|-----------|------------|-----------|-------------|---------------------------------------|---------------|------------------|--|
| Code            |                        |              |           |            | mg KOH/g  | mg KOH/g    | mPa·s                                 | %             |                  | Field of use   |
| ADICROL FD 315  | Aromatic               | DEG          | Linear    | Liquid     | 300 - 330 | ≤ 3         | 2000 - 3000<br>(25°C)                 | ≤ 0,15        | ≤ 3<br>(Gardner) | Low viscosity polyester for the production of rigid PIR (polyisocyanurates) in order to improve thermal insulation efficiency. |
| ADICROL FD 250  | Aromatic               | DEG          | Linear    | Liquid     | 230 - 270 | ≤ 3         | 3800 - 4200<br>(25°C)                 | ≤ 0,15        | ≤ 3<br>(Gardner) | Lower OH number polyester for PIR foams<br>or mixed with other polyols for PUR foams<br>manufacturing.                         |
| ADICROL TAD 250 | Aromatic/<br>Aliphatic | DEG          | Linear    | Liquid     | 240 - 260 | 2 - 3       | 3200 - 4600<br>(25°C)                 | ≤ 0,10        | ≤ 9<br>(Gardner) | Terephthalic acid based polyester for the<br>production of rigid foam with enhanced<br>mechanical properties.                  |



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Application

#### CASTING ELASTOMERS AND TPU



|                    | Acids/Ar                | Main                 | Stru    | Appe   | чHО       | Acid r   | Brookfield<br>(tempo  | Water  | Hazen |  |
|--------------------|-------------------------|----------------------|---------|--------|-----------|----------|-----------------------|--------|-------|--|
| Code               |                         |                      |         |        | mg KOH/g  | mg KOH/g | mPa·s                 | %      |       | Field of use   |
| ADICROL BM 56      | Aliphatic               | 1,4-BDO,<br>MEG      | Linear  | Solid  | 54 - 58   | ≤ 0,5    | 4400 - 5200<br>(35°C) | ≤ 0,1  | ≤ 100 | Very good physical and mechanical properties. It can be used to produce cast elastomers and TPU.                                     |
| ADICROL LM 56      | Aliphatic               | MEG                  | Linear  | Solid  | 54 - 58   | ≤ 0,7    | 460 - 600<br>(75°C)   | ≤ 0,1  | ≤ 100 | Good general properties. These products combine competitive prices and good performances. They                                       |
| ADICROL LM 112     | Aliphatic               | MEG                  | Linear  | Solid  | 108 - 116 | ≤ 0,7    | 450 - 650<br>(50°C)   | ≤ 0,08 | ≤ 100 | can be used with NDI or MDI to produce cast elastomers or with MDI in the production of TPU.   |
| ADICROL B 38       | Aliphatic               | 1,4-BD0              | Linear  | Solid  | 37 - 40   | ≤ 0,5    | 2500 - 4000<br>(60°C) | ≤ 0,1  | ≤ 40  |  |
| ADICROL B 55       | Aliphatic               | 1,4-BD0              | Linear  | Solid  | 54 - 58   | ≤ 0,7    | 1300 - 1500<br>(60°C) | ≤ 0,1  | ≤ 60  | Very good physical and mechanical properties.<br>Good hydrolysis resistance. They can be used to<br>produce cast elastomers and TPU. |
| ADICROL B 112      | Aliphatic               | 1,4-BD0              | Lineare | Solid  | 108 - 116 | ≤ 0,7    | 300 - 500<br>(60°C)   | ≤ 0,05 | ≤ 50  |  |
| ADICROL E 37       | Aliphatic               | 1,6 -<br>hexanediol  | Linear  | Solid  | 35 - 39   | ≤ 0,7    | 2800 - 3100<br>(60°C) | ≤ 0,1  | ≤ 100 | Excellent physical and mechanical properties,  |
| ADICROL E 56       | Aliphatic               | 1,6 -<br>hexanediol  | Linear  | Solid  | 54 - 58   | ≤ 0,5    | 560 - 760<br>(70°C)   | ≤ 0,1  | ≤ 100 | resistance. Mainly used in the production of TPU.  |
| ADICROL BIO SPD 56 | Bio<br>succinic<br>acid | Renewable<br>glycols | Linear  | Solid  | 54 - 58   | ≤ 0,3    | 2700 - 3700<br>(60°C) | ≤ 0,1  | ≤ 100 | 100% based on renewable raw materials.<br>Particularly recommended for the production of<br>thermoplastic polyurethanes.             |
| ADICROL BIO LM 58  | Dicarboxylic            | MEG                  | Linear  | Liquid | 55 - 61   | ≤1       | 800 - 1200<br>(70°C)  | ≤ 0,08 | ≤ 250 | 30% based on renewable raw materials.<br>Recommended for the production of cast<br>elastomers.                                       |



Application

#### **POLYURETHANE COATING**

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|                 | Acids                   | Ma                          | S      | Ap     | Ģ         | Aci      | Brookf<br>(ten        | Wat    | Наг   |   |  |
|-----------------|-------------------------|-----------------------------|--------|--------|-----------|----------|-----------------------|--------|-------|---|--|
| Code            |                         |                             |        |        | mg KOH/g  | mg KOH/g | mPa∙s                 | %      |       | Field of use  |  |
| ADICROL BM 56   | Aliphatic               | 1,4-BDO,<br>MEG             | Linear | Solid  | 54 - 58   | ≤ 0,5    | 4400 - 5200<br>(35°C) | ≤ 0,1  | ≤ 100 | Mainly used in the production of PU in solution for   |  |
| ADICROL BM 140  | Aliphatic               | 1,4-BDO,<br>MEG             | Linear | Solid  | 134 - 146 | ≤ 0,6    | 1400 - 1600<br>(25°C) | ≤ 0,1  | ≤ 150 | mechanical properties.  |  |
| ADICROL B 38    | Aliphatic               | 1,4-BD0                     | Linear | Solid  | 37 - 40   | ≤ 0,5    | 2500 - 4000<br>(60°C) | ≤ 0,1  | ≤ 40  |   |  |
| ADICROL B 55    | Aliphatic               | 1,4-BD0                     | Linear | Solid  | 54 - 58   | ≤ 0,7    | 1300 - 1500<br>(60°C) | ≤ 0,1  | ≤ 60  | Used in the production of PU in solution and in<br>granules. Excellent physical and mechanical<br>properties and flexing resistance even at low<br>temperature.                         |  |
| ADICROL B 112   | Aliphatic               | 1,4-BD0                     | Linear | Solid  | 108 - 116 | ≤ 0,7    | 300 - 500<br>(60°C)   | ≤ 0,05 | ≤ 50  |   |  |
| ADICROL BN 56   | Aliphatic               | 1,4-BDO,<br>NPG             | Linear | Liquid | 54 - 58   | ≤ 0,5    | 8200 - 9800<br>(35°C) | ≤ 0,1  | ≤ 100 | Very good physical and mechanical properties.   |  |
| ADICROL BN 112  | Aliphatic               | 1,4-BDO,<br>NPG             | Linear | Liquid | 108 - 116 | ≤ 0,5    | 1800 - 2600<br>(35°C) | ≤ 0,08 | ≤ 100 | produce cast elastomers and TPU.  |  |
| ADICROL AIB 40  | Aromatic /<br>Aliphatic | 1,4-BD0                     | Linear | Solid  | 36 - 40   | <1       | 6500 - 7500<br>(60°C) | < 0,1  | < 100 | Characterized by a good flexibility and a good<br>hydrolysis resistance. Particularly recommended<br>for the production of water-based PU for coating<br>in leather and wood finishing. |  |
| ADICROL AIE 56  | Aromatic /<br>Aliphatic | 1,6 -<br>hexanediol         | Linear | Solid  | 54 - 58   | ≤ 0,8    | 900 - 1300<br>(75°C)  | ≤ 0,08 | ≤ 150 |   |  |
| ADICROL AIE 72  | Aromatic /<br>Aliphatic | 1,6 -<br>hexanediol         | Linear | Solid  | 70 - 74   | ≤ 1,0    | 5500 - 6500<br>(35°C) | ≤ 0,1  | ≤ 120 | Used in the production of water-based PU<br>dispersions for leather finishing. Excellent<br>physical and mechanical properties; high<br>hydrolysis resistance.                          |  |
| ADICROL AIE 120 | Aromatic /<br>Aliphatic | 1,6 -<br>hexanediol         | Linear | Solid  | 116 - 124 | ≤ 0,5    | 250 - 350<br>(70°C)   | ≤ 0,08 | ≤ 150 |   |  |
| ADICROL EN 120  | Aliphatic               | 1,6 -<br>hexanediol,<br>NPG | Linear | Solid  | 116 - 124 | < 0,6    | 300 - 400<br>(60°C)   | < 0,1  | < 100 | Excellent hydrolysis resistance and good flexibility in a wide temperature range.   |  |
| ADICROL LD 40   | Aliphatic               | DEG                         | Linear | Liquid | 38 - 42   | ≤ 0,8    | 7000 - 8000<br>(35°C) | ≤ 0,08 | ≤ 100 | Mainly used in the production of PU in solution   |  |
| ADICROL LD 56   | Aliphatic               | DEG                         | Linear | Liquid | 54 - 58   | ≤ 0,7    | 3700 - 4000<br>(35°C) | ≤ 0,08 | ≤ 150 | average general features.   |  |

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Application

#### POLYURETHANE ADHESIVES FOR FOOTWEAR

|               | Acids/Anhydrides | Main glycols        | Structure | Appearance | OH number | Acid number | Brookfield viscosity<br>(temperature) | Water content | Hazen colour |
|---------------|------------------|---------------------|-----------|------------|-----------|-------------|---------------------------------------|---------------|--------------|
| Code          |                  |                     |           |            | mg KOH/g  | mg KOH/g    | mPa-s                                 | %             |              |
| ADICROL B 38  | Aliphatic        | 1,4-BD0             | Linear    | Solid      | 37 - 40   | ≤ 0,5       | 2500 - 4000<br>(60°C)                 | ≤ 0,1         | ≤ 40         |
| ADICROL B 55  | Aliphatic        | 1,4-BD0             | Linear    | Solid      | 54 - 58   | ≤ 0,7       | 1300 - 1500<br>(60°C)                 | ≤ 0,1         | ≤ 60         |
| ADICROL B 112 | Aliphatic        | 1,4-BD0             | Linear    | Solid      | 108 - 116 | ≤ 0,7       | 300 - 500<br>(60°C)                   | ≤ 0,05        | ≤ 50         |
| ADICROL E 37  | Aliphatic        | 1,6 -<br>hexanediol | Linear    | Solid      | 35 - 39   | ≤ 0,7       | 2800 - 3100<br>(60°C)                 | ≤ 0,1         | ≤ 100        |
| ADICROL E 56  | Aliphatic        | 1,6 -<br>hexanediol | Linear    | Solid      | 54 - 58   | ≤ 0,5       | 560 - 760<br>(70°C)                   | ≤ 0,1         | ≤ 100        |



Field of use

Good physical and mechanical properties. Good hydrolysis resistance. Used in the production of granules and solvent based polyurethane adhesives.

Excellent physical and mechanical properties, especially at low temperature. High hydrolysis resistance. Used in the production of granules and solvent based polyurethane adhesives.

#### **Application**

### POLYURETHAN ADHESIVES FOR FLEXIBLE PACKAGING

|   | Acids/Anhydrides        | Main glycols                | Structure | Appearance | OH number                      | Acid number                    | Brookfield viscosity<br>(temperature) | Water content | Hazen colour     |  |  |
|---|-------------------------|-----------------------------|-----------|------------|--------------------------------|--------------------------------|---------------------------------------|---------------|------------------|--|--|
| Code  |                         |                             |           |            | mg KOH/g                       | mg KOH/g                       | mPa-s                                 | %             |                  | Field of use   |  |
| ADICROL EN 56                                       | Aliphatic               | 1,6 -<br>hexanediol,<br>NPG | Linear    | Solid      | 54 - 58                        | ≤1                             | 800 - 900<br>(70°C)                   | ≤ 0,1         | ≤ 100            | Excellent hydrolysis resistance and good flexibility<br>at a wide range of temperatures. Used for one-<br>and two- component adhesives, usually in ethyl<br>acetate solutions. |  |
| ADICROL LD 40                                       | Aliphatic               | DEG                         | Linear    | Liquid     | 38 - 42                        | ≤ 0,8                          | 7000 - 8000<br>(35°C)                 | ≤ 0,08        | ≤ 100            | Good flexibility in a wide temperature range. Used   |  |
| ADICROL LD 56                                       | Aliphatic               | DEG                         | Linear    | Liquid     | 54 - 58                        | ≤ 0,7                          | 3700 - 4000<br>(35°C)                 | ≤ 0,08        | ≤ 150            | solvent- or water-based.   |  |
| ADICROL FD 315 S                                    | Aromatic                | DEG                         | Linear    | Liquid     | 300 - 330                      | ≤ 3                            | 2000 - 3000<br>(25°C)                 | ≤ 0,10        | ≤ 250            | Particularly indicated for the production of lamination adhesives.   |  |
| ADISOL AIP 75 AE 75<br>(75% solid in ethyl acetate) | Aromatic /<br>Aliphatic | MPG,<br>1,4-BDO             | Branched  | Liquid     | 70 - 80<br>(on dry<br>content) | ≤ 8<br>(on dry<br>content)     | 3000 - 4000<br>(25°C)                 | ≤ 0,1         | ≤ 250            | Ingredient for adhesives formulation.  |  |
| ADISOL APG 32 X 60<br>(60% solid in xylene)         | Aliphatic               | Special<br>glycols          | Branched  | Liquid     | 30 - 35<br>(on dry<br>content) | 23 - 27<br>(on dry<br>content) | R - S<br>(Gardner, 25°C)              | ≤ 0,1         | ≤ 150            | Ingredient for adhesives formulation.  |  |
| ADISOL ID 32 AE 75<br>(75% solid in ethyl acetate)  | Aromatic /<br>Aliphatic | DEG,<br>1,4-BDO             | Linear    | Liquid     | 30 - 34                        | ≤ 1<br>(on dry<br>content)     | 900 - 1400<br>(25°C)                  | ≤ 0,1         | ≤ 2<br>(Gardner) | Ingredient for adhesives formulation for lamination.   |  |



Application

#### **POLYURETHANE SYSTEMS FOR FOOTWEAR**



|                | Acids/       | Mair     | St                    | App        | А        | Acio     | Brookfii<br>(tem        | Wate   | Haze              |   |
|----------------|--------------|----------|-----------------------|------------|----------|----------|-------------------------|--------|-------------------|---|
| Code           |              |          |                       |            | mg KOH/g | mg KOH/g | mPa-s                   | %      |                   | Field of use  |
| ADICROL R 46   | Aliphatic    | MEG, DEG | Branched              | Liquid     | 44 - 48  | ≤ 0,5    | 1400 - 1600<br>(60°C)   | ≤ 0,1  | ≤ 150             |   |
| ADICROL R 56   | Aliphatic    | MEG, DEG | Branched              | Liquid     | 54 - 58  | ≤ 1      | 4000 - 5000<br>(35°C)   | ≤ 0,1  | ≤ 150             | Mainly used for prepolymers and polyols for the<br>production of women's and men's shoe soles with<br>good performance in temperate climates.                               |
| ADICROL R 60 S | Aliphatic    | DEG      | Branched              | Liquid     | 59 - 63  | ≤ 1,7    | 9500 - 10500<br>(35°C)  | ≤ 0,1  | ≤ 150             |   |
| ADICROL L 40   | Aliphatic    | MEG, DEG | Linear                | Liquid     | 39 - 42  | ≤1       | 7500 - 9000<br>(35°C)   | ≤ 0,1  | ≤ 150             | Can be used for the production of prepolymers and polyols. Good flexing resistance and physical   |
| ADICROL L 56   | Aliphatic    | MEG, DEG | Linear                | Solid      | 54 - 58  | ≤ 1      | 4100 - 5000<br>(35°C)   | ≤ 0,1  | ≤ 150             | properties. Used in the production of men's and women's footwear in temperate climates.   |
| ADICROL GR 59  | Aliphatic    | MEG, DEG | Branched,<br>modified | Dispersion | 56 - 62  | ≤ 0,8    | 1500 - 3200<br>(60°C)   | ≤ 0,05 | N.D.              | Slightly branched polyester resin with polymeric<br>modifications for the production of shoe soles.<br>Characterized by good bearing capacity and<br>dimensional stability. |
| ADICROL A 38   | Dicarboxylic | MEG, DEG | Branched              | Liquid     | 36 - 40  | ≤ 1      | 5000 - 6000<br>(50°C)   | ≤ 0,1  | ≤ 18<br>(Gardner) | Used in polyols for the production of sandals with  |
| ADICROL A 62   | Dicarboxylic | MEG      | Branched              | Liquid     | 60 - 64  | ≤ 1      | 9000 - 11000<br>(35°C)  | ≤ 0,1  | ≤ 18<br>(Gardner) | extraction time is reduced.   |
| ADICROL A 56   | Dicarboxylic | MEG      | Linear                | Liquid     | 54 - 58  | ≤ 1      | 700 - 850<br>(75°C)     | ≤ 0,1  | ≤ 18<br>(Gardner) | Used in polyols for the production of sandals with low moulding density.  |
| ADICROL AGR 60 | Dicarboxylic | MEG      | Branched,<br>modified | Liquid     | 58 - 62  | ≤ 1      | 14000 - 19000<br>(35°C) | ≤ 0,1  | N.D.              | Slightly branched and with a polymeric<br>modification for the production of shoe soles.<br>Characterized by good bearing capacity and<br>dimensional stability.            |

#### Application POLYESTER POLYOLS FOR PIGMENT PASTE

|                | Acids/Anhydrides | Main glycols | Structure | Appearance | OH number | Acid number | Brookfield viscosity<br>(temperature) | Water content | Hazen colour     |  |
|----------------|------------------|--------------|-----------|------------|-----------|-------------|---------------------------------------|---------------|------------------|--|
| Code           |                  |              |           |            | mg KOH/g  | mg KOH/g    | mPa·s                                 | %             |                  | Field of use   |
| ADICROL AP 210 | Aliphatic        | MPG          | Linear    | Liquid     | 200 - 220 | ≤ 0,5       | 190 - 210<br>(50°C)                   | ≤ 0,4         | ≤ 150            | Recommended for the manufacturing of pigment paste.  |
| ADICROL S 56   | Aliphatic        | DEG          | Linear    | Liquid     | 52 - 60   | ≤1          | 4000 - 5000<br>(25°C)                 | ≤ 0,1         | ≤ 8<br>(Gardner) | 65% based on renewable raw material.<br>Characterized by primary hydroxyl groups,<br>difunctional. Particularly recommended for the<br>production of dark pigment paste. |





#### SISTEMA DI QUALITÀ CERTIFICATO **CERTIFIED QUALITY SYSTEM**



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