

Octyl alcohol F

Oxo alcohols

Trade name:

Octyl alcohol F

Chemical name:

Distillation residue, by-products from the production
of 2-ethylhexan-1-ol.

CN:

3824 90 97

CAS:

68609-68-7

Properties

Octyl alcohol F is a liquid whose colour varies from yellow,
through brown-yellow to greenish, with a characteristic odour.

Use

Octyl alcohol F is used as a flotation agent.

Product classification

Octyl alcohol F is not classified as a hazardous material according
to RID/ADR.

Physical and chemical properties

| Parameter | Business unit | Value | Test methods |
|---|---------------|-------|-----------------------|
| 2-ethylhexanol, not more than | % m/m | 30 | ZAK's internal method |
| High-molecular compounds >C8, not less than | % m/m | 70 | ZAK's internal method |

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Manufacturer:

Grupa Azoty

Zakłady Azotowe Kędzierzyn S.A.



Isobutyraldehyde

| | |
|--------------------------|--|
| Trade name: | Isobutyraldehyde |
| Chemical name: | 2-methylpropanal, isobutyraldehyde, isobutanal |
| CN: | 2912 19 00 |
| CAS: | 78-84-2 |
| Chemical formula: | $(\text{CH}_3)_2\text{CHCHO}$ |

Properties

Isobutyraldehyde is a transparent, colourless liquid with a characteristic odour.

Product classification

Isobutyraldehyde is classified as a hazardous material according to RID/ADR.

- RID Kl. 3, packing group II
- ADR Kl. 3, packing group II

Use

Isobutyraldehyde is used as a raw material for producing alcohols, acids, amines, and esters. It is used in processes of manufacturing plasticizers, pharmaceutical products, plant protection agents, synthetic resins, fragrances, solvents and all sorts of additives used in many branches of industry (antioxidants, wetting agents, perfume ingredients, improvers).

Physical and chemical properties

| Parameter | Business unit | Value | Test methods |
|---------------------------------|---------------|-------|-----------------------|
| Colour, not more than | Pt-Co | 15 | ISO 6271 |
| Acid number, not more than | mg KOH/g | 2 | ZAK's internal method |
| N-butyraldehyde, not more than | % m/m | 0,2* | ZAK's internal method |
| Water, not more than | % m/m | 1,5 | ISO 760 |
| Isobutyraldehyde, not less than | % m/m | 99,5* | ZAK's internal method |

* the values do not take into account water content in the product

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Manufacturer:
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Zakłady Azotowe Kędzierzyn S.A.



N-butyraldehyde

| | |
|--------------------------|--|
| Trade name: | N-butyraldehyde |
| Chemical name: | N-butyraldehyde, n-butanal |
| CN: | 2912 19 00 |
| CAS: | 123-72-8 |
| Chemical formula: | $\text{CH}_3(\text{CH}_2)_2\text{CHO}$ |

Properties

N-butyraldehyde is a transparent, colourless liquid with a characteristic odour.

Product classification

N-butyraldehyde is classified as a hazardous material according to RID/ADR.

- RID Class 3, packing group II
- ADR Class 3, packing group II

Use

N-butyraldehyde is used as a raw material for producing alcohols (mono- and polyalcohols), acids, amines, and esters. It is used in processes of manufacturing plasticizers, pharmaceutical products, plant protection agents, synthetic resins, fragrances, solvents and all sorts of additives used in many branches of industry (fillers, wetting agents, anti-foaming agents, improvers).

Physical and chemical properties

| Parameter | Business unit | Value | Test methods |
|--------------------------------|---------------|-------|-----------------------|
| Colour, not more than | Pt-Co | 15 | ISO 6271 |
| Acid number, not more than | mg KOH/g | 1 | ZAK's internal method |
| N-butyraldehyde, not more than | % m/m | 0,1 | ZAK's internal method |
| Water, not more than | % m/m | 0,2 | ISO 760 |
| N-butyraldehyde, not less than | % m/m | 99,5 | ZAK's internal method |

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2-ethylhexanol

Oxo alcohols

| | |
|--------------------------|---|
| Trade name: | 2-ethylhexanol, 2-EH |
| Chemical name: | 2-ethylhexanol, 2-ethylhexane-1-ol |
| CN: | 2905 16 85 |
| CAS: | 104-76-7 |
| Chemical formula: | $\text{CH}_3(\text{CH}_2)_3\text{CH}(\text{C}_2\text{H}_5)\text{CH}_2\text{OH}$ |

Properties

2-ethylhexanol is a transparent, colourless liquid with a characteristic odour.

Product classification

2-ethylhexanol is not classified as a hazardous material according to RID/ADR.

Use

2-ethylhexanol is used for producing: low-volatile esters used as plasticizers for plastic materials, additives improving thermal stability and resistance to oxidation of plastic materials, surfactants, anti-foaming agents using in the textile and paper industries, solutions used in extraction processes, brake fluids, fuel additives (2-ethylhexyl nitrate), 2-ethylhexyl acrylate and ethoxides of auxiliary agents for agriculture produced on the basis of ethylene oxide, compounds used in flame retardant mixtures (bromo derivatives), cosmetics and pharmaceutical products.

Physical and chemical properties

| Parameter | Business unit | Value | Test methods |
|--|-------------------|-------------|-----------------------|
| 2-ethylhexanol, not less than | % m/m | 99.7 | ZAK's internal method |
| Colour, degrees on the Pt-Co scale, not more than | APHA | 5 | ISO 6271 |
| Density at 20°C, within the limits of | g/cm ³ | 0,832-0,834 | Arealometric method |
| Acids expressed as acetic acid, not more than | % m/m | 0,01 | ASTM D 1613 |
| Aldehydes expressed as 2-ethylhexanol, not more than | % m/m | 0,05 | BS 4583 |
| Water, not more than | % m/m | 0,05 | ISO 12937:2000 |

Parameters guaranteed by the manufacturer indicated in the case of a complaint.

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Manufacturer:

Grupa Azoty

Zakłady Azotowe Kędzierzyn S.A.

Isobutanol

Oxo alcohols

| | |
|--------------------------|---|
| Trade name: | Isobutanol |
| Chemical name: | 2-methylpropan-1-ol, isobutanol, isobutyl alcohol |
| CN: | 2905 14 90 |
| CAS: | 78-83-1 |
| Chemical formula: | $\text{CH}_3\text{CH}(\text{CH}_3)\text{CH}_2\text{OH}$ |

Properties

Isobutanol is a transparent, colourless liquid with a characteristic odour.

Product classification

Isobutanol is classified as a hazardous material according to RID/ADR.

- RID Class 3, packing group III
- ADR Class 3, packing group III

Use

Isobutanol is used for producing: esters (used as solvents and fragrances), paints and varnishes (solvent, agent preventing blushing, improving fluidity and reducing viscosity of water-soluble paints), additives for plastics (plasticizers), melamine and urea-formaldehyde resins (as solvent or butylating agent), auxiliary agents for agriculture (butylamines), flotation additives, and ethers of ethylene and propylene glycols.

Physical and chemical properties

| Parameter | Business unit | Value | Test methods |
|--|---------------|-------------|-----------------------|
| Isobutanol, not less than | % m/m | 99.8 | ZAK's internal method |
| Colour, degrees on the Pt-Co scale, not more than | APHA | 5 | ISO 6271 |
| Density at 20°C*, within the limits of | g/cm³ | 0,802-0,804 | Arealometric method |
| Acids express as acetic acid*, not more than | % m/m | 0,003 | ASTM D 1613 |
| Aldehydes expressed as butyraldehyde*, not more than | % m/m | 0,05 | BS 4583 |
| Water, not more than | % m/m | 0,1 | ISO 12937:2000 |

* Parameters guaranteed by the manufacturer indicated in the case of a complaint.

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Manufacturer:
Grupa Azoty
Zakłady Azotowe Kędzierzyn S.A.



n-butanol

Oxo alcohols

| | |
|--------------------------|--|
| Trade name: | n-butanol |
| Chemical name: | n-butanol, butan-1-ol, n-butyl alcohol |
| CN: | 2905 13 00 |
| CAS: | 71-36-3 |
| Chemical formula: | CH ₃ CH ₂ CH ₂ CH ₂ OH |

Properties

N-butanol is a transparent, colourless liquid with a characteristic odour.

Product classification

N-butanol is classified as a hazardous material according to RID/ADR.

- RID Class 3, packing group III
- ADR Class 3, packing group III

Use

N-butanol is used for producing: esters (used as solvents and fragrances), paints and varnishes (solvent, agent preventing blushing, improving fluidity and reducing viscosity of water-soluble paints), additives for plastics (plasticizers), melamine and urea-formaldehyde resins (as solvent or butylating agent), auxiliary agents for agriculture (butylamines), flotation agents, and ethers of ethylene and propylene glycols.

Physical and chemical properties

| Parameter | Business unit | Value | Test methods |
|--|-------------------|-------------|-----------------------|
| n-butanol, not less than | % m/m | 99.8 | ZAK's internal method |
| Colour, degrees on the Pt-Co scale, not more than | APHA | 5 | ISO 6271 |
| Density at 20°C*, within the limits of | g/cm ³ | 0,810-0,812 | Arealometric method |
| Acids expressed as acetic acid*, not more than | % m/m | 0,005 | ASTM D 1613 |
| Aldehydes expressed as butyraldehyde*, not more than | % m/m | 0,05 | BS 4583 |
| Water, not more than | % m/m | 0,05 | ISO 12937:2000 |

* Parameters guaranteed by the manufacturer indicated in the case of a complaint.

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Manufacturer:
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Oxoplast® IB

Plasticizers

| | |
|--------------------------|----------------------------|
| Trade name: | Oxoplast® IB |
| Chemical name: | diisobutyl phthalate, DIBP |
| CN: | 2917 34 00 |
| CAS: | 84-69-5 |
| Chemical formula: | $C_6H_{14}(COOC_4H_9)_2$ |

Properties

Oxoplast® IB is an oily, colourless liquid.

Product classification

Oxoplast® IB is classified as a hazardous material according to RID/ADR.

- RID Class 9, packing group III
- ADR Class 9, packing group III

Use

OXOPLAST® IB is used mainly as a polyvinyl chloride softening agent. Used for manufacturing flexible lining, paints and varnishes, adhesives, curing agents for polyester resins, polyvinyl acetate dispersions and nitrocellulose products.

Physical and chemical properties

| Parameter | Business unit | Value | Test methods |
|---|-------------------|-------------|-------------------|
| Colour, degrees on the Pt-Co scale, not more than | °Hz | 30 | ISO 6271-1 |
| Flash point, not less than | °C | 170 | ISO 2592 |
| Esters expressed as diisobutyl phthalate, not less than | % m/m | 99,5 | ISO 1385/V |
| Density at 20°C, within the limits of | g/cm³ | 1,037-1,041 | Areometric method |
| Free acids expressed as phthalic acid, not more than | % m/m | 0,01 | ISO 1385/IV |
| Refractive index, within the limits of | n ²⁰ D | 1,488-1,492 | ISO 1385/I |
| Water content, not more than | % m/m | 0,1 | ISO 760 |

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Manufacturer:
Grupa Azoty
Zakłady Azotowe Kędzierzyn S.A.



Oxoplast® O

Plasticizers

Trade name: Oxoplast® O

Chemical name: bis(2-ethylhexyl) phthalate, DEHP

CN: 2917 32 00

CAS: 117-81-7

Chemical formula: C₆H₄(COOC₈H₁₇)₂

Properties

Oxoplast® O is an oily, colourless liquid.

Use

OXOPLAST® O is used in plastic material processing as a plasticizer and in the paint and varnish industry.

Product classification

Oxoplast® O is not classified as a hazardous material according to RID/ADR.

Physical and chemical properties

| Parameter | Business unit | Value | Test methods |
|--|-------------------|-------------|-----------------------|
| Colour, degrees on the Pt-Co scale, not more than | °Hz | 30 | DIN ISO 6271 |
| Flash point, not less than | °C | 206 | ISO 2592 |
| Volatile substances (150°C / 2 h), not more than | % m/m | 0,4 | ZAK's internal method |
| Esters expressed as bis(2-ethylhexyl) phthalate, not less than | % m/m | 99,5 | ISO 1385/V |
| Bis(2-ethylhexyl) phthalate, not less than | % m/m | 99,5 | ZAK's internal method |
| Density at 20°C, within the limits of | g/cm ³ | 0,983-0,986 | Arealometric method |
| Free acids expressed as phthalic acid, not more than | % m/m | 0,01 | ISO 1385/IV |
| Water, not more than | % m/m | 0,1 | ISO 760 |

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Manufacturer:

Grupa Azoty

Zakłady Azotowe Kędzierzyn S.A.



Oxoplast® OT

Plasticizers

Trade name: Oxoplast® OT

Chemical name: bis(2-ethylhexyl) terephthalate, DEHT

CN: 2917 39 95

CAS: 6422-86-2

Chemical formula: C₆H₄(COOC₈H₁₇)₂

Properties

Oxoplast® OT is an oily, colourless or light straw-coloured liquid, with no mechanical impurities.

Use

Oxoplast® OT is used in plastic material processing as a plasticizer and in the paint and varnish industry.

Product classification

Oxoplast® OT is not classified as a hazardous material according to RID/ADR.

Physical and chemical properties

| Parameter | Business unit | Value | Test methods |
|--|-------------------|-------------|-----------------------|
| Colour, degrees on the Pt-Co scale, not more than | °Hz | 20 | DIN ISO 6271 |
| Flash point, not less than | °C | 230 | ISO 2592 |
| Volatile substances (150°C / 2 h), not more than | % m/m | 0,2 | ZAK's internal method |
| Esters expressed as bis(2-ethylhexyl) terephthalate, not less than | % m/m | 99,5 | ISO 1385/V |
| Bis(2-ethylhexyl) terephthalate, not less than | % m/m | 98,0 | ZAK's internal method |
| Density at 20°C, not less than / not more than | g/cm ³ | 0,980-0,985 | Arealometric method |
| Free acids expressed as phthalic acid, not more than | % m/m | 0,01 | ISO 1385/IV |
| Water, not more than | % m/m | 0,1 | ISO 760 |

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Manufacturer:

Grupa Azoty

Zakłady Azotowe Kędzierzyn S.A.



Oxoplast® PH

Plasticizers

| | |
|--------------------------|-------------------------------------|
| Trade name: | Oxoplast® PH |
| Chemical name: | Bis(2-propylheptyl) phthalate, DPHP |
| CN: | 2917 33 00 |
| CAS: | 53306-54-0 |
| Chemical formula: | $C_6H_{14}(COOC_{10}H_{21})_2$ |

Properties

Oxoplast® PH is an oily, colourless or light straw-coloured liquid, with no mechanical impurities.

Use

OXOPLAST® PH is used in plastic material processing as a plasticizer and in the paint and varnish industry.

Product classification

Oxoplast® PH is not classified as a hazardous material according to RID/ADR.

Physical and chemical properties

| Parameter | Business unit | Value | Test methods |
|--|---------------|-------------|-----------------------|
| Colour, degrees on the Pt-Co scale, not more than | °Hz | 30 | DIN ISO 6271 |
| Flash point, not less than | °C | 220 | ISO 2592 |
| Volatile substances (150°C / 2 h), not more than | % m/m | 0,4 | ZAK's internal method |
| Esters expressed as bis(2-propylheptyl) phthalate, not less than | % m/m | 99,5 | ISO 1385/V |
| Density at 20°C, within the limits of | g/cm³ | 0,960-0,965 | Arealometric method |
| Free acids expressed as phthalic acid, not more than | % m/m | 0,01 | ISO 1385/IV |
| Water, not more than | % m/m | 0,1 | ISO 760 |

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Manufacturer:

Grupa Azoty

Zakłady Azotowe Kędzierzyn S.A.

Maleic anhydride

| | |
|--------------------------|-----------------------------------|
| Trade name: | Maleic anhydride |
| Chemical name: | maleic anhydride, furan-2,5-dione |
| CN: | 2917 14 00 |
| CAS: | 108-31-6 |
| Chemical formula: | (CH=CH)(CO) ₂ O |

Properties

Maleic anhydride has the form of white irregular granules or flakes; after melting it becomes a colourless, clear liquid.

Product classification

Maleic anhydride is classified as a hazardous material according to RID/ADR.

- RID Class 8, packing group III
- ADR Class 8, packing group III

Use

Maleic anhydride is used for producing: large volume chemicals, plastic materials, alkyl resins, softening agents, fragrances, fungicides and dyes for laboratories. It is also used as a monomer in polymerization reactions, in the paints and varnishes industry.

Physical and chemical properties

| Parameter | Business unit | Value | Test methods |
|---|---------------|--------|--------------|
| Maleic anhydride, not less than | % m/m | 99.5 | ISO 1390-4 |
| Colour, degrees on the Pt-Co scale, not more than | APHA | 20 | ISO 1390-2 |
| Freezing point, not less than | C | 52,0 | ISO 1392 |
| Ash, not more than | % m/m | 0.002 | ISO 1390-5 |
| Iron, not more than | % m/m | 0.0001 | ISO 1390-6 |
| Maleic acid, not more than | % m/m | 0,5 | ISO 1390-3 |

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