

# JARCOL™

## BRANCH CHAIN SATURATED ALCOHOLS

cosmetics  
metal processing  
surfactants  
printing inks  
emulsifiers  
pharmaceuticals  
lubricants  
rubber  
textiles  
plastics  
detergents  
paper coating  
adhesives

# JARCOL™ BRANCH CHAIN SATURATED ALCOHOLS

JARCOL™ is the trade name of JARCHEM INDUSTRIES INC. for the family of saturated primary alcohols with defined branching of the carbon chain. These alcohols are chemically 2-Alkyl Alkanols and are also known as Guerbet alcohols. Unlike dimer alcohols, which are based on oxo-alcohols, both alkyl groups are 100% linear resulting in low viscosity, improved biodegradability, excellent color and thermostability.

The primary advantage of these alcohols is that they remain liquid at room temperature and have very low freezing points compared to straight chain linear alcohols with corresponding molecular weights. Saturation provides greater oxidative, hydrolytic and color stability over unsaturated alcohols with similar chain lengths. The JARCOL alcohols are excellent substitutes for linear alcohols.

JARCOL Alcohols with chain lengths from C<sub>12</sub> to C<sub>24</sub> are water white liquids even at temperatures below 0°C. The JARCOL alcohols with chain lengths from C<sub>28+</sub> are white wax-like solids with unique melting point characteristics. Characteristics include light color, low volatility, low to no odor and most important, stability against oxidation. Structures naturally influence solvent and solubility characteristics. Advantageous surface tensions recommend their use as raw materials for surfactant specialties.

A wide variety of products can be derived from JARCOL Alcohols for example:

- |              |                      |                        |                     |                 |                     |
|--------------|----------------------|------------------------|---------------------|-----------------|---------------------|
| ■ Acrylates  | ■ Alkylethersulfates | ■ Alkylpolyglycoethers | ■ Carboxylic acids  | ■ Mercaptans    | ■ Sulfosuccinates   |
| ■ Aldehydes  | ■ Alkylhalides       | ■ Alkylsulfates        | ■ Etheramines       | ■ Methacrylates | ■ Thiodipropionates |
| ■ Alkoxyates | ■ Alkylphosphates    | ■ Amines               | ■ Fatty Acid Esters | ■ Silicones     | ■ Urethanes         |

The JARCOL alcohols, as well as derivatives made from them, provide many varied uses in several industries including:

## COSMETICS

- Polyglycolesters as emulsifiers
- Alcohols and derivatives as emollients, emulsifiers, dispersants, solubilizers and penetrants in creams, lotions, ointments, lipsticks, lip balms, deodorants, hair fixatives, etc.
- Liquid substitutes for linear alcohols
- Alcohols as oily components with good solvent properties for active ingredients
- Superfattening agents

## PHARMACEUTICALS

- Alcohols as emollients and/or as solubilizers of active ingredients for enhanced drug delivery in ointment and cream bases
- Jarcol 1-20 meets USP/NF specifications

## METAL PROCESSING

- Alcohols as lubrication enhancers and coupling agents in cooling and cutting fluids; stamping, grinding and rolling oils
- Alcohols as solubilizers and defoamers in water miscible cutting fluids
- Saturated, stable replacement for unsaturated Oleyl alcohols
- Esters as EP additives and to improve thermal stability and lower viscosity for metal coolants

## TEXTILES

- Esters as thermostable and biodegradable lubricants in fiber spin finishes
- Esters as low foaming wetting agents and surfactants

## LUBRICANTS

- Methacrylates as raw materials for lube oil additives
- Esters as components of Synlubes

## PRINTING INKS

- Alcohols as solubilizers, anticlogging agents and solvents for special inks

## SURFACTANTS

- Polyglycoethers for cleansing of hard surfaces
- Ethoxysulphates as surfactants with advantageous combination of wetting and foaming properties

## ADDITIONAL TECHNICAL APPLICATIONS

- Alcohols as components of defoamers (detergents, hard surface cleaners, paper production and leather)
- Acrylates and methacrylates as odorless specialty monomers
- Other new uses are constantly being developed and identified



# PHYSICAL & CHEMICAL DATA

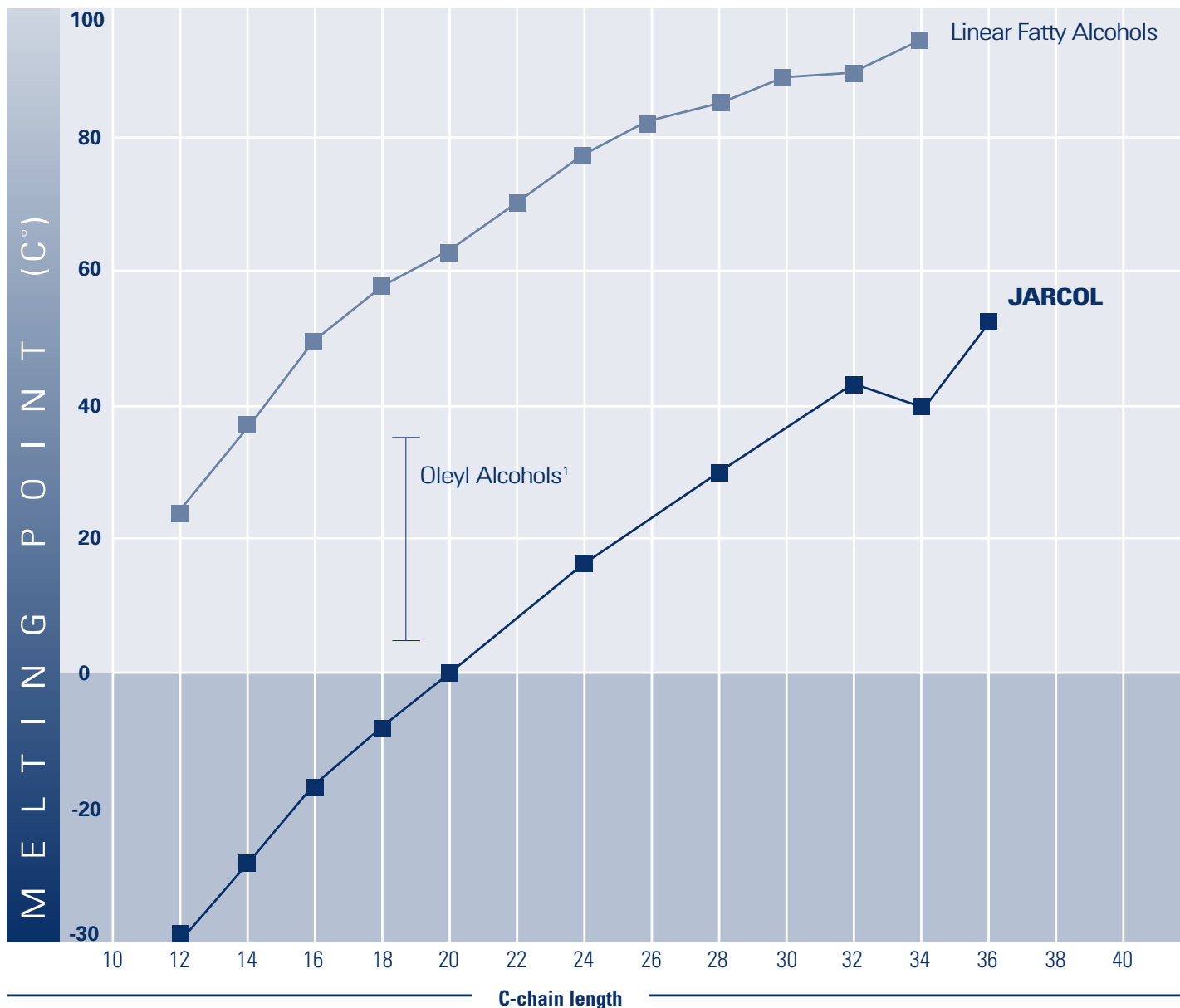
JARCOL™	JARCOL I-12	JARCOL I-14T	JARCOL I-16	JARCOL I-18T	JARCOL I-18E	JARCOL I-20	JARCOL I-24	JARCOL I-28	JARCOL I-32	JARCOL I-34T	JARCOL I-36
CAS Numbers	3913-02-8	19780-79-1 21078-81-9	2425-77-6	110225-00-8 45235-48-1	110225-00-8 45235-48-1	5333-42-6	58670-89-6	72388-18-2	32582-32-4	119691-49-5 69472-23-7	17658-63-8
Spec. Alcohol Content (%)	Min. 97	Min. 95	Min. 97	Min. 95	Min. 95	Min. 97	Min. 97	Min. 90	Min. 80	Min. 75	Min. 80
Color APHA (Hazen)	20 Max.	20 Max.	20 Max.	20 Max.	20 Max.	20 Max.	20 Max.	50 Max.	100 Max.	400 Max.	400 Max.
Saponification Number (mg KOH/g)	1.0 Max.	1.0 Max.	1.0 Max.	1.0 Max.	1.0 Max.	1.0 Max.	1.0 Max.	6.0 Max.	6.0 Max.	6.0 Max.	6.0 Max.
Acid Number (mg KOH/g)	0.1 Max.	0.1 Max.	0.1 Max.	0.1 Max.	0.1 Max.	0.1 Max.	0.1 Max.	2 Max.	2 Max.	2 Max.	2 Max.
Water (wt. %)	0.1 Max.	0.1 Max.	0.1 Max.	0.1 Max.	0.1 Max.	0.1 Max.	0.1 Max.	0.2 Max.	0.2 Max.	0.2 Max.	0.2 Max.
Iodine Number (mg KOH/g)	1.0 Max.	1.0 Max.	1.0 Max.	1.0 Max.	1.0 Max.	1.0 Max.	1.0 Max.	4.0 Max.	4.0 Max.	5.0 Max.	5.0 Max.
Hydroxyl Number (mg KOH/g)	286-305	252-265	225-235	197-210	196-206	184-190	154-160	110-130	95-120	85-110	85-105
Molecular Weight	186	212-223	242	267-285	269-279	298	354	415	470	500	510
Neutralization Number (mg KOH/g)	0.1 Max.	0.1 Max.	0.1 Max.	0.1 Max.	0.1 Max.	0.1 Max.	0.1 Max.	2 Max.	2 Max.	2 Max.	2 Max.
Carbonyl Number (mg KOH/g)	0.3 Max.	0.3 Max.	0.3 Max.	0.3 Max.	0.3 Max.	0.3 Max.	0.3 Max.	2 Max.	2 Max.	2 Max.	2 Max.
Ester Value (mg KOH/g)	1.0 Max.	1.0 Max.	1.0 Max.	1.0 Max.	1.0 Max.	1.0 Max.	1.0 Max.	6.0 Max.	6.0 Max.	6.0 Max.	6.0 Max.
Refractive Index @ 20°C*(nD)	1.443	1.447	1.450	1.452	1.452	1.455	1.457	1.454 (40°C)	1.447 (60°C)	1.447 (60°C)	1.448 (60°C)
Density@ 20°C* (g/ml)	0.831-0.835	0.833-0.837	0.835-0.840	0.835-0.839	0.835-0.839	0.836-0.840	0.840-0.844	0.830 (40°C)	.0820 (60°C)	.0820 (60°C)	.0821 (60°C)
Viscosity@ 20°C* (mPas)	23	32	38	50	50	60/10 (/60°C)	86/14 (/60°C)	36 (40°C)	23 (60°C)	25 (60°C)	27 (60°C)
Melting Range (°C)	<-30	<-25	-21/-15	-10/-6	-10/-6	-1/+1	17/20	31/37	44/48	37/43	50/57
Boiling Point (°C) (33mbar)	243*	245-305	294*	290*	290*	324*	>300	>300	>300	>300	>325
Flash Point (°C)* (ISO 2592)	120	139	156	170	170	180	230	254	266	278	279
Surface Tension @ 20°C*(mN/m)	28	30	30	30	30	31	32	31 (50°C)	30 (50°C)	29 (50°C)	28 (50°C)

\* Approximate Data • Developmental Only

	Chemical Synonyms	R <sub>1</sub> R <sub>2</sub> Values
JARCOL I-12	2 Butyl Octanol (Iso Lauryl Alcohol)	R <sub>1</sub> =C <sub>6</sub> H <sub>13</sub> R <sub>2</sub> =C <sub>4</sub> H <sub>9</sub>
JARCOL I-14T	2 Butyl Decanol/2 Hexyl Octanol (Iso Myristyl Alcohol)	C <sub>12</sub> 10-20% C <sub>14</sub> 45-55% C <sub>16</sub> 25-35%
JARCOL I-16	2 Hexyl Decanol (Iso Cetyl Alcohol)	R <sub>1</sub> =C <sub>6</sub> H <sub>13</sub> R <sub>2</sub> =C <sub>6</sub> H <sub>13</sub>
JARCOL I-18T	2 Octyl Decanol/2 Hexyl Dodecanol (Iso Stearyl Alcohol)	C <sub>16</sub> 15-20% C <sub>18</sub> 46-54% C <sub>20</sub> 27-33%
JARCOL I-18E	2 Octyl Decanol/2 Hexyl Dodecanol (Iso Stearyl Alcohol)	C <sub>18</sub> 85-90% C <sub>16</sub> 3-6% C <sub>20</sub> 3-6%
JARCOL I-20	2 Octyl Decanol (Iso Arachidyl Alcohol)	R <sub>1</sub> =C <sub>10</sub> H <sub>21</sub> R <sub>2</sub> =C <sub>8</sub> H <sub>17</sub>
JARCOL I-24	2 Octyl Tetradecanol (Iso Lignocery Alcohol)	R <sub>1</sub> =C <sub>12</sub> H <sub>25</sub> R <sub>1</sub> =C <sub>10</sub> H <sub>21</sub>
JARCOL I-28	2 Dodecyl Hexadecanol (Iso Lauryl Cetyl Alcohol)	R <sub>1</sub> =C <sub>14</sub> H <sub>29</sub> R <sub>1</sub> =C <sub>12</sub> H <sub>25</sub>
JARCOL I-32	2 Tetradecyl Octadecanol (Iso Myristyl Stearyl Alcohol)	R <sub>1</sub> =C <sub>16</sub> H <sub>33</sub> R <sub>1</sub> =C <sub>14</sub> H <sub>29</sub>
JARCOL I-34T	2 Tetradecyl Eicosanol/2 Hexadecyl Octadecanol (Iso Cetyl Stearyl Alcohol)	C <sub>32</sub> 15-30% C <sub>34</sub> 30-40% C <sub>36</sub> 15-30%
JARCOL I-36	2 Hexadecyl Eicosanol (Iso Cetyl Arachidyl Alcohol)	R <sub>1</sub> =C <sub>18</sub> H <sub>37</sub> R <sub>1</sub> =C <sub>16</sub> H <sub>33</sub>

## MELTING POINTS OF JARCOL™ ALCOHOLS

The advantageous melting ranges of JARCOL Alcohols in comparison to linear saturated and unsaturated fatty alcohols are shown in this graph.



<sup>1</sup> End of melting range, Iodine number 45-96 mg 1/100 mg

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