



APPROVED FOOD ADDITIVE APPLICATIONS

Soltrol® 10, 100, 125, and 130 isoparaffin solvents meet the specifications of the following sections of Title 21 of the Code of Federal Regulations (21 CFR):

- | | |
|----------------|---|
| 172.882 | Synthetic isoparaffinic petroleum hydrocarbons |
| 178.3530 | Isoparaffinic petroleum hydrocarbons, synthetic |
| 178.3620(b)(1) | Technical white mineral oil, i and ii |

Soltrol® 170 solvent meets the requirements for 21 CFR 172.882. Both Soltrol® 170 and 220 solvents meet 21 CFR 178.3620(b)(1), 21 CFR 172.884 (odorless light petroleum hydrocarbons, synthetic) and 21 CFR 573.740.

By meeting these specifications, Soltrol® isoparaffin solvents are permitted for use in a broad range of direct and indirect food contact applications, including:

- Direct food additives approved for coating on eggshells, defoamers in processing beet sugar, float/fermentation fluids in processing wine and vinegar, froth flotation cleaning of vegetables and components of insecticides
- Indirect food additive use as plasticizers, lubricants of fibers for food contact, components of adhesives and defoamers in coating and paperboard manufacturing



Chevron Phillips Chemical Company LP is a global leader in the manufacture of specialty chemicals marketed and distributed in more than 40 locations worldwide. Our products are utilized as raw materials, intermediates and end-use applications such as Scentinel® Natural Gas Odorants, E-III® Fire Training Fluids, EcoSolv® Dry Cleaning Fluids and ForSField™ Protective Coatings.

Chevron Phillips Chemical offers more than quality products. Our dedicated sales, customer service and technical support staff are stationed around the globe to provide you with prompt and knowledgeable assistance to meet your needs. Additionally, our research and development team is aggressively developing new products, searching for new applications and derivatives of existing products, and evaluating opportunities to form strategic partnerships in both new and existing technologies.

Chevron Phillips Chemical is equally owned by Chevron Corporation and Phillips 66, and is headquartered in The Woodlands, Texas.

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SOLTROL®

ISOPARAFFIN SOLVENTS



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SOLTROL® ISOPARAFFIN SOLVENTS

Soltrol® products offer a full boiling range of isoparaffin solvents for product formulations and processing. They are synthesized in a modern alkylation process with stringent manufacturing specifications, ensuring quality products low in odor and unsaturates. Because Soltrol® solvents are low in aromatics, they possess low odor and low toxicity.

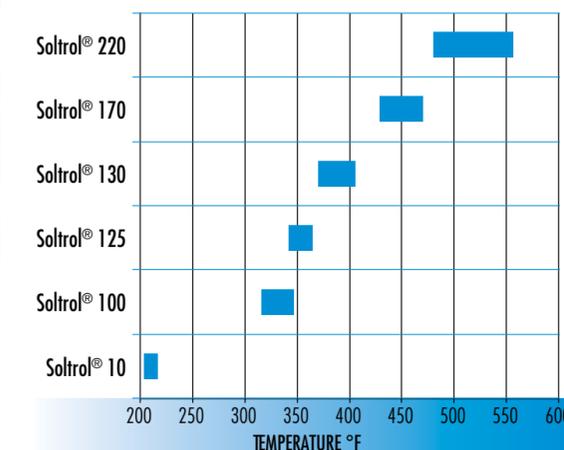
The physical properties of these products provide significant benefits in a wide range of applications. Their low aromatic content, low surface tension, and controlled evaporation make them ideal for paint, cosmetic, diluent, dry cleaning, and household product formulations. The selective solvency of Soltrol® products yield significant benefits to

applications such as calibration fluids, compass fluids, cosmetics, diluents, elastomer based adhesives, cutting fluids, copying fluids, fiber processing aids, household products, water treatment products and waterless hand cleaner. Soltrol® isoparaffin solvents do not cause corrosion and therefore are ideal for metalworking and other metal contact uses.

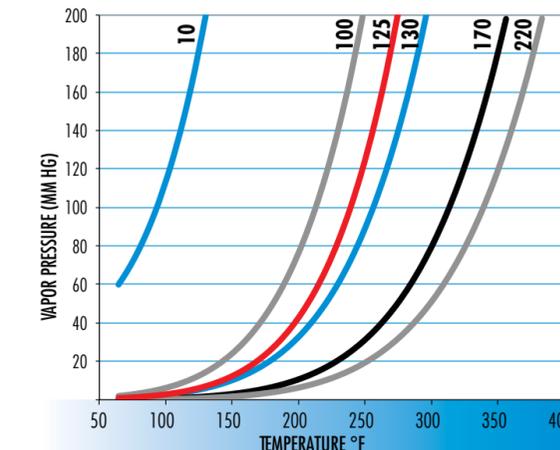


CHARACTERISTICS	SOLTROL® ISOPARAFFIN SOLVENTS TYPICAL VALUES						TEST METHOD
	10	100	125	130	170	220	
Distillation Range at 760 mmHg, °F (°C)							
Initial Boiling Point	204 (96)	316 (158)	342 (172)	370 (188)	429 (221)	480 (249)	ASTM D 86
10%	206 (97)	320 (160)	345 (174)	373 (189)	437 (225)	500 (260)	
50%	208 (98)	325 (163)	348 (176)	377 (192)	446 (230)	516 (269)	
90%	210 (99)	336 (169)	356 (180)	389 (198)	458 (237)	540 (282)	
Final Boiling Point	217 (103)	347 (175)	365 (185)	405 (207)	470 (243)	556 (291)	
Flash Point, °F (°C)	13 (-11)	104 (40)	122 (50)	144 (62)	190 (88)	233 (112)	ASTM D 56
Purity, wt% Isoparaffins	99+	99+	99+	99+	99+	99+	Chromatography
Average Molecular Weight, g/mole	110	141	154	165	188	197	
API Gravity at 60°F (15.6°C)	70.6	58.7	56.4	53.9	49.7	43.2	ASTM D 4052
Specific Gravity of Liquid at 60/60°F (15.6/15.6°C)	0.698	0.744	0.753	0.763	0.78	0.81	ASTM D 4052
Density of Liquid at 60°F (15.6°C), lb/gal	5.83	6.20	6.28	6.36	6.51	6.75	ASTM D 4052
Vapor Pressure at 100°F (37.8°C), mmHg	114	6.18	2.86	2.57	0.7	0.36	ASTM D 323
Refractive Index	1.392	1.415	1.421	1.426	1.435	1.448	ASTM D 1218
Kinematic Viscosity at 100°F (37.8°C), cSt	0.6	1.1	1.3	1.5	2.6	3.3	ASTM D 445
Surface Tension, mN/m at 70°F	20	24	24-25	25	26	27	ASTM D 1331 A
Sulfur Content, ppm	<1	<1	<1	<1	<1	<1	ASTM D 5453
Bromine No.	0.06	0.002	0.001	0.016	0.015	0.045	ASTM D 1159
Nonvolatile Matter, mg/100mL (ppm, wt)	0.3	<1	<1	<1	<1	<1	ASTM D 1353
Color, Saybolt	+30	+30	+30	+30	+30	+30	ASTM D 6045
Acidity of Distillation Residue	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	ASTM D 1093
Doctor Test	Negative	Negative	Negative	Negative	Negative	Negative	ASTM D 235
Odor	—	Pass	Pass	Pass	—	—	Panel
Kauri-Butanol Value	28	28	27	26	25	24	ASTM D 1133
Aniline Point, °F (°C)	171 (77)	181 (83)	184 (84)	188 (87)	196 (91)	196 (91)	ASTM D 611
Copper Corrosion, 3h at 212°F (100°C)	—	1A/B	1A/B	1A/B	1A/B	1A/B	ASTM D 130
CAS Reg. No.	70024-92-9	68551-16-6	68551-16-6	68551-17-7	68551-19-9	68551-20-2	

BOILING POINT RANGE OF SOLTROL® SOLVENTS



VAPOR PRESSURE OF SOLTROL® SOLVENTS



21 CFR* APPLICATIONS

All Soltrol® isoparaffin solvents may be used in accordance with the following 21 CFR regulations:

- 173.340 Defoaming agents
- 175.105 Adhesives
- 176.180 Components of paper and paperboard in contact with dry food
- 176.200 Defoaming agents used in coatings
- 176.210 Defoaming agents used in the manufacture of paper and paperboard
- 177.1200 Cellophane
- 177.2260 Filters, resin-bonded
- 177.2600 Rubber articles intended for repeated use
- 177.2800 Textiles and textile fibers
- 178.3120 Animal glue
- 178.3570 Lubricants with incidental food contact
- 182.99 Adjuvants for pesticide chemicals (crops and raw agricultural commodities)
- 573.680 Mineral oil (animal feeds)
- 573.740 Odorless light petroleum hydrocarbons – insecticide formulations
- 582.99 Adjuvants for pesticide chemicals (animals)

OTHER APPLICATIONS

The low odor and controlled physical properties of Soltrol® products make them the solvent of choice for multiple applications. Additionally, these fluids are available in varying distillation ranges and flash points.

Soltrol® fluids are virtually non-toxic by oral, dermal, and inhalation routes. They are non-irritating to skin and are minimally irritating to the eyes upon direct exposure.

Many applications already benefit from the characteristics of Soltrol® solvents. Below are just a few of the places in which these products are used to enhance the performance of the final product or process.

Soltrol® 10 Solvent: Adhesives, catalyst diluents, printing inks, rubber goods manufacturing, sealants, solvent in aerosol products, polymerization diluents, wax diluents

Soltrol® 100 Solvent: Electrostatic copying fluids, film cleaning, polyolefin reaction diluents, polyolefin catalyst carriers

Soltrol® 125 Solvent: Alkyd paints, catalyst carriers, ceramic grinding, deoilers/degreasers, electrostatic copy fluids, floor and furniture polishes, insecticide base oils, machine cleaning, paper coating formulations, polyolefin reaction diluents, specialty metal finishing and cleaning, spot cleaners, waterless hand cleaners

Soltrol® 130 Solvent: Alkyd paints, catalyst carriers, ceramic grinding, deoilers/degreasers, electrostatic copy fluids, floor and furniture polishes, insecticide base oils, machine cleaning, paper coating formulations, polyolefin reaction diluents, specialty metal finishing and cleaning, spot cleaners, waterless hand cleaners

Soltrol® 170 Solvent: Adhesives, animal feeds, automobile fragrances, defoamers, dust reducers, insecticide carrier for food processing plants, light lubricants, water treatment products, waterless hand cleaners, LVP VOC solvents

Soltrol® 220 Solvent: Adhesives, aerosols, animal feeds, defoamers, dust reducers, cleaning, chemical manufacturing and extraction, water treatments, VOC exempt solvents, LVP VOC solvents

*21 CFR = Title 21 of the Code of Federal Regulations