



# **SOLANE** range:

**Hydrocarbon solvents  
and plasticizers** for all  
formulation needs



**TotalEnergies**

  [specialfluids.totalenergies.com](https://specialfluids.totalenergies.com)

TotalEnergies Fluids SAS - Head office: Tour Coupole, 2 place Jean Miller La Défense 6 - 92078 Paris La Défense Cedex - Share capital: €6,920,000.00 - Registered in Nanterre: RCS B 342 241 908 - Photo credits: Shutterstock - Design and layout: Nobin's - December 2022



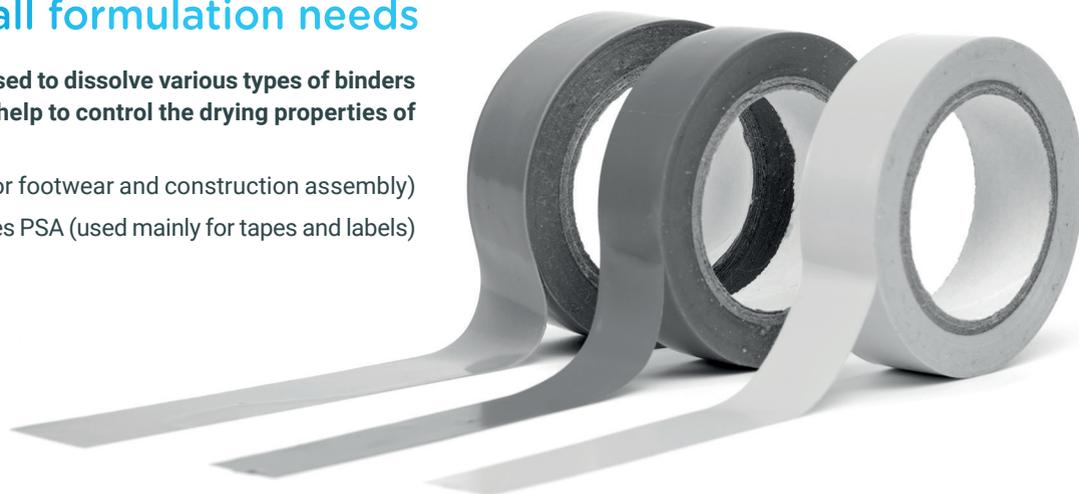
## SOLANE solvents: The right solutions whatever your application

Adhesive techniques are now well-known and are increasingly used in a great variety of applications including the automotive industry, construction and building. These techniques are also of particular interest to the wood/timber, furnishing, leather goods, shoes, packaging and electronic industries.

### Addressing all formulation needs

Hydrocarbon solvents are used to dissolve various types of binders and polymers and can also help to control the drying properties of adhesive solvents.

- ▶ Contact adhesives (used for footwear and construction assembly)
- ▶ Pressure-sensitive adhesives PSA (used mainly for tapes and labels)
- ▶ Hot melt PSA



### Large solvent range for contact and rubber adhesives

SOLANE	EVAPORATION RATE DIN 53170 (Ether)	DISTILLATION RANGE (C°)		40 60 80 100 120 140 160 T°C						
		IBP	FBP							
Cyclopentane	2.0	48.5	49.5	[Bar chart showing distillation range from 48.5 to 49.5°C]						
IsoHexane	1.0	51	61	[Bar chart showing distillation range from 51 to 61°C]						
Hexane	2.0	65	69	[Bar chart showing distillation range from 65 to 69°C]						
60-95	2.0	61	94	[Bar chart showing distillation range from 61 to 94°C]						
CycloHexane	2.0	> 80.6	80.8	[Bar chart showing distillation range from 80.6 to 80.8°C]						
Solane C	2.0	71	93	[Bar chart showing distillation range from 71 to 93°C]						
80-110	3.0	83	108	[Bar chart showing distillation range from 83 to 108°C]						
Heptane	3.0	90	94	[Bar chart showing distillation range from 90 to 94°C]						
Methylcyclohexane (MCH)	5.0	100.5	101.6	[Bar chart showing distillation range from 100.5 to 101.6°C]						
100-140 HN	6.0	102	137	[Bar chart showing distillation range from 102 to 137°C]						
100-160	11	124	157	[Bar chart showing distillation range from 124 to 157°C]						

The Special Fluids  
division of TotalEnergies:  
A global network  
with a local touch

A RECOGNISED  
GLOBAL  
LEADER

**HEALTH AND SAFETY**  
ARE THE CORNERSTONES  
OF OUR PROCESSES



**MULTI-SKILLED**  
TEAMS of passionate,  
seasoned specialists

**A WIDE SELECTION**  
**OF PRODUCTS**  
FOR VARIOUS INDUSTRIAL  
APPLICATIONS



**PLANTS**  
in France  
and the US



**3 LEADING-EDGE**  
**R&D CENTRES**  
two in France,  
one in Belgium,  
and a technical  
centre in India



## Meeting regulations without compromising performance

The REACH regulation (EC 1907/2006) and its amendments introduced in annex XVII some restrictions on use of Toluene and Cyclohexane in adhesives intended for sale to the general public. TotalEnergies offers alternative solutions using Methylcyclohexane (SOLANE MCH offers a similar evaporation rate to Toluene). Formulations can be adjusted by optimizing Methyl ethyl ketone (MEK) content and/or acetate esters to obtain the required performances.

Examples of replacement of Toluene by Methylcyclohexane are given here below.  
Solvent ratios have been adjusted to maintain the same Hansen solubility parameters.

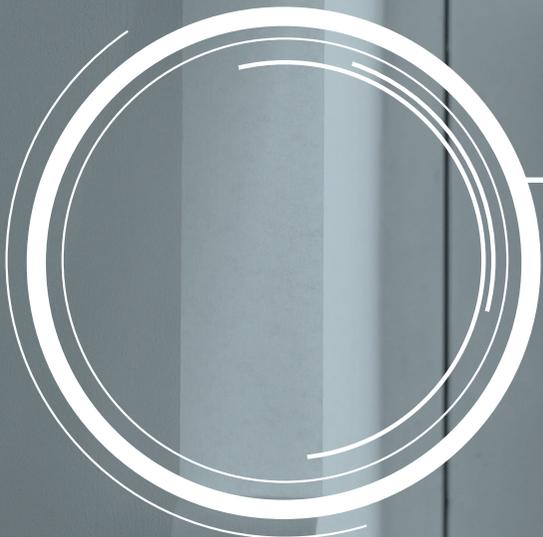
LOW TOLUENE CONTENT		REFERENCE	ALTERNATIVE	HIGH TOLUENE CONTENT		REFERENCE	ALTERNATIVE
COMPOUND % (wt/wt)	Methyl Ethyl Ketone	30	30	COMPOUND % (wt/wt)	Methyl Ethyl Ketone	10	10
	Solane 60/95	60	55		Ethyl Acetate	30	50
	<b>Solane MCH</b>	-	<b>15</b>		<b>Solane MCH</b>	-	<b>40</b>
	<b>Toluene</b>	<b>10</b>	-		<b>Toluene</b>	<b>60</b>	-
HANSEN SOLUBILITY PARAMETERS (sqrt/J/cm <sup>3</sup> )	δp	2.54	2.42	HANSEN SOLUBILITY PARAMETERS (sqrt/J/cm <sup>3</sup> )	δp	3.35	3.40
	δH	1.54	1.39		δH	3.84	3.92
	δD	15.58	15.47		δD	17.15	15.91
	δ total	15.86	15.71		δ total	17.89	16.73

	DISTILLATION RANGE (C°)		EVAPORATION RATE (ETHER -1)		ANILINE POINT (C°)		FLASH POINT (C°)	
	Value	Method	Value	Method	Value	Method	Value	Method
TOLUENE	109 - 112	ASTM D850	6	DIN 53170	9	ASTM D611	4	ISO 13736
SOLANE MCH	100 - 103	ASTM D86	5		41		-13	

### Health and Environmental benefits of Methylcyclohexane (MCH)

HAZARDS	TOLUENE	METHYLCYCLOHEXANE
 <b>HEALTH</b>	<b>H304</b> - May be fatal if swallowed and enters airways <b>H315</b> - Causes skin irritation <b>H336</b> - May cause drowsiness or dizziness <b>H373</b> - May cause damage to organs through prolonged or repeated exposure if inhaled <b>H361d</b> - Suspected of damaging the unborn child	<b>H304</b> - May be fatal if swallowed and enters airways <b>H315</b> - Causes skin irritation <b>H336</b> - May cause drowsiness or dizziness
 <b>ENVIRONMENT</b>	<b>H412</b> - Harmful to aquatic life with long lasting effects	<b>H411</b> - Toxic to aquatic life with long lasting effects

# SOLANE: A wide set of product ranges



## » SOLANE RANGE:

- ✓ Aliphatic and cycloaliphatic solvents and naphthenic fluids
  - Consistent and predictable process performance
  - Meet increasingly stringent regulations while maintaining the benefits of solvent-based formulations
  - Reduced worker exposure to hazardous chemicals

## » TOLUENE, XYLENE AND SOLVAREX:

- ✓ Aromatic solvents ranges for a variety of glue & adhesive formulations



**TotalEnergies**