



**Your new partner for safe flights, MKS DevO  
Chemicals De/Anti-Icing Solutions**



**MKS DevO Chemicals was established in 2003 which operates in the Bandırma Organized Industrial Zone**

- ❖ **Production facility covering 100,000 m<sup>2</sup>**
- ❖ **Annual production capacity of 120,000 tons**
- ❖ **More than 200 employees**
- ❖ **Exports to more than 30 countries.**
- ❖ **Collaboration with TÜBİTAK and its government-supported R&D center is among Turkey's top five Organic Chemical industrial enterprises.**



## Bandırma Chemical Complex (BCC)

- ❖ BCC is an advanced unit which contains highly technical and specialist equipment including state-of-the-art glass lined reactors, graphite heat exchangers, spray dryer, large capacity reactors, blenders and liquid and solid raw material storage facilities.
- ❖ BCC site's proximity to international ports, make it an ideal export & import hub for our group operations.





# MKS DevO Chemicals

## Our Vision

To become a world-class global company in the chemical production sector, offering creative and innovative products under competitive conditions while ensuring sustainable growth, profitability, and development.



# MKS DevO Chemicals

## Our Mission

To be a **global chemical company** that provides a wide range of chemical products and technological solutions, ensures unconditional customer satisfaction through high-quality service, and works to maintain competitiveness and achieve operational excellence.



## Business by Industries



**NAPHTHALENE SULPHONATE**



**PHOSPHONATES**



**POLYMERS**



**ANIONIC SURFACTANTS**



**PHTHALATE FREE PLASTICIZERS**



**DIGITAL PRINTING INK**

**SULTAN EYE**



**SULPHUR BLACK DYESTUFF FOR PAPER**

**SULPHUR BLACK DYESTUFF FOR DENIM**

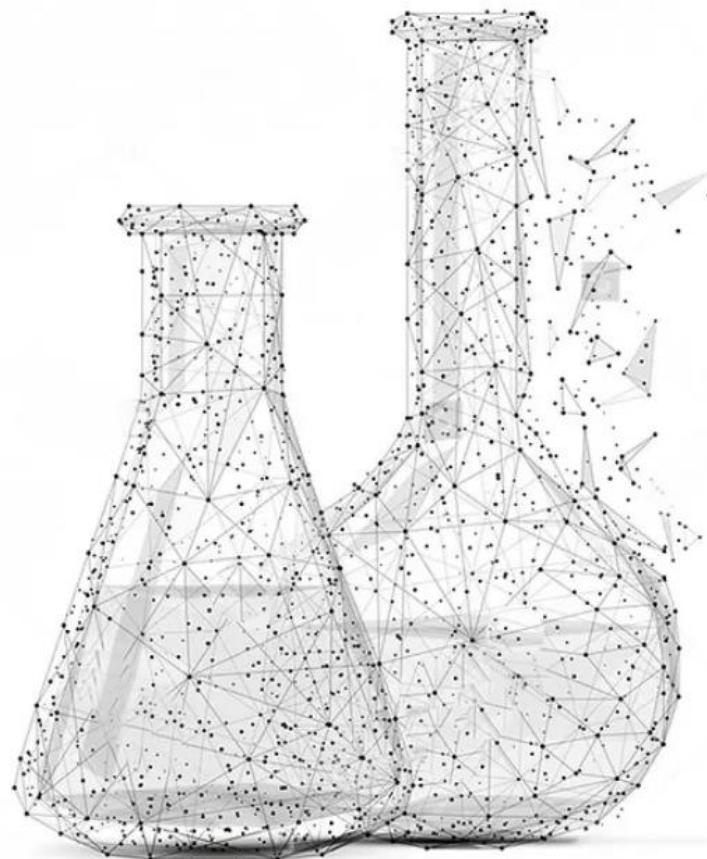
**SULPHUR BLACK RECYCLE**



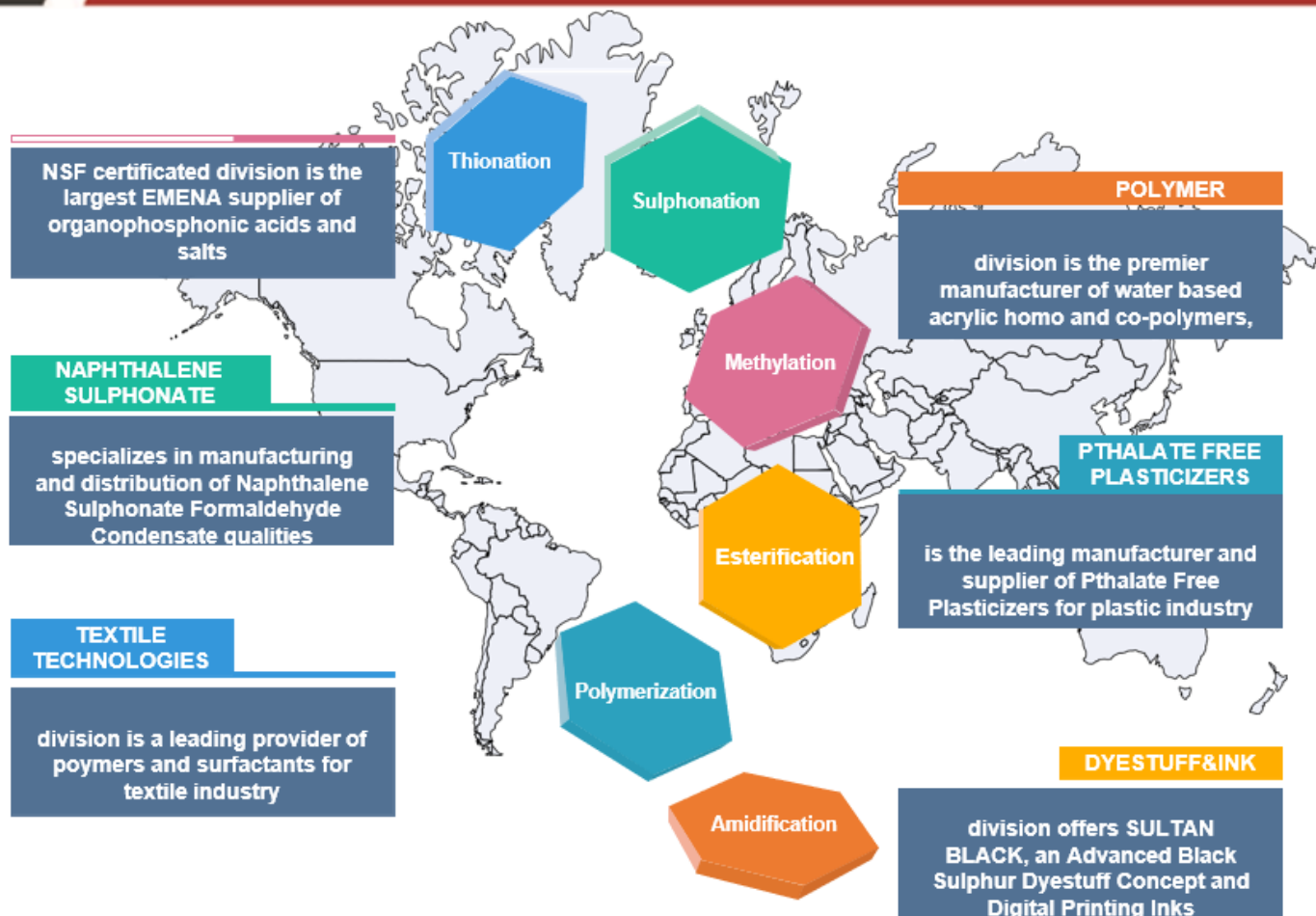
**TEXTILE AUXILIARIES**



**DE-ANTI ICING CHEMICALS**



# Business Divisions

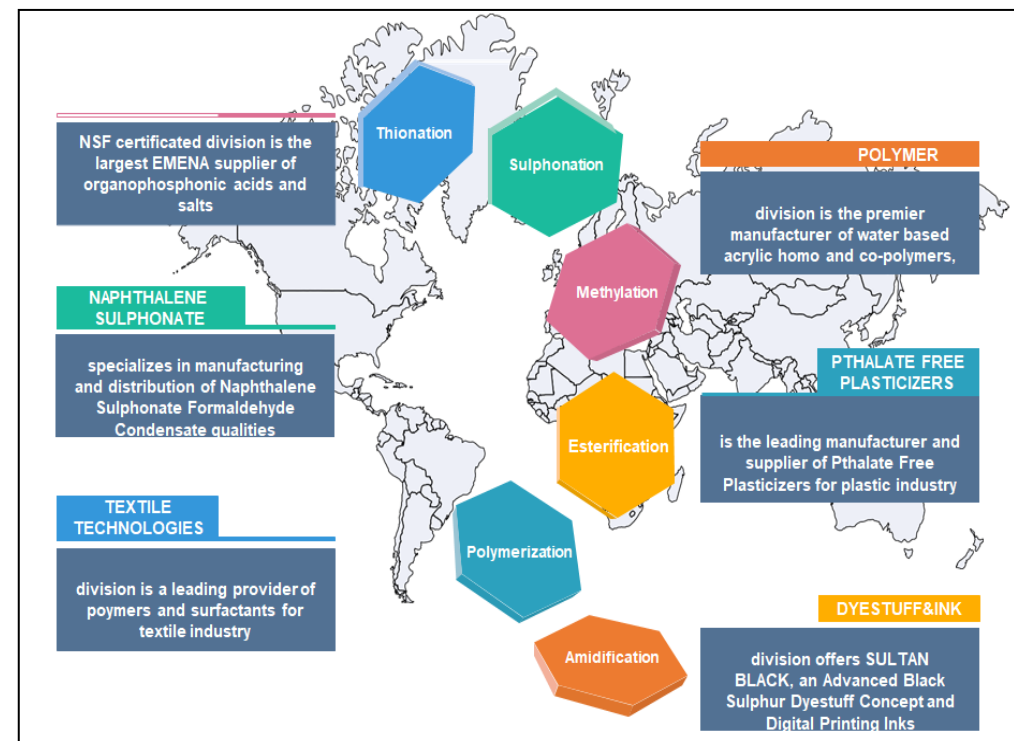


- ✓ **In our company's general projection we focus on achieving the target of 1 Commodity Chemical and 1 Speciality Chemical every 5 years. During the last 5 years, we completed our certification process on the Local and National production of Icephobic Materials for the Aviation Sector and put it into mass production as a specialty chemical.**
- ✓ **With our R&D Center we have been completed our first target on Type-I and Runway Deicer Fluids certification on this project and following years we approved our Type-II and Type-IV product.**



## WHY MKS DevO & DEICING FLUIDS?

- ✓ Our experience in Homogenizing, Particle Size Reduction and Microfiltration processes which are used during the production of "Deicing" products among the chemical production technologies of our factory
- ✓ Our production of "Polymeric and Organo Phosphonic Acid" based products such as corrosion inhibitors and rheology modifiers, which are among the important RAW MATERIALS in the content of these deicing fluids, at world standards
- ✓ Our company's strong laboratory infrastructure for certification and its experience in the production of products requiring similar accreditation puts us in a strategically advantageous position for the production of Deicing chemicals.



- ✓ **In our BCC Production Facility we have ability to produce Type-I Fluids by continuous process**
- ✓ **We have a large reactor capacity of up to 50 tons/batch for Type-II and Type-IV products**
- ✓ **It is also possible to store Monopropylene Glycol in bulk capacities, which is the largest input of these products**
- ✓ **We have our internal logistic company due to significant advantage in today's conditions where logistics has become extremely important.**

# MKS DevO & DEICING FLUIDS

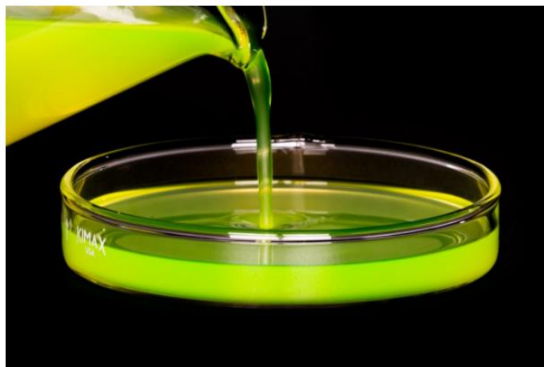
Type I



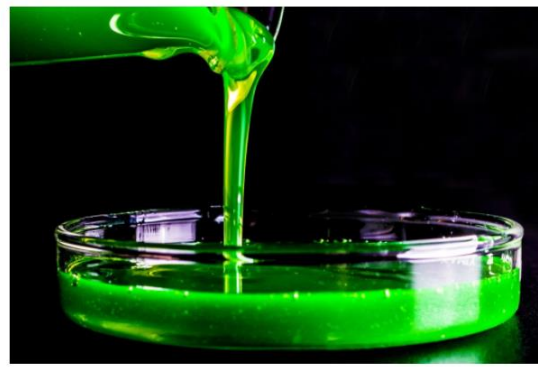
Type II



Type III



Type IV



# TYPE-I PG BASED FLUID

## PRODUCT FEATURES

- Product conform Aerodynamic and Climatic acceptance of AMS 1424R and certified by AMIL.
- Product qualified by SMI Inc. on corrosion and environmental parameters.
- Product conforms material evaluation of "BOEING BSS 7432" standards and certified by SMI Inc.
- Coreicephob Type-I has low surfactant and triazole-free formulation gives lower COD and BOD values.

## PRODUCT PROPERTIES

Density (20°C)	1.03 - 1.07 g/cm <sup>3</sup>
Brookfield Viscosity (UL Adapter-12 rpm-20°C)	20-25 mPa.s
Refractive Index (20 °C)	1.407 - 1.422
Surface Tension	37-45 dynes/cm
Appearance	orange clear liquid
pH (as is)	7.50 - 9.50
COD	1.31 kg O <sub>2</sub> /kg
BOD <sub>5</sub>	0,45 kg O <sub>2</sub> /kg
Freezing Point (diluted 1: 1 with water)	< -27.7 °C
LOUT (71:29)	-32.5 °C
Chemical Composition	80% aqueous propylene glycol solution with corrosion inhibitors

Dilution Coreicephob Type-I Concentrate: Water	Refractive Index (+20°C)	Freezing point
100:00	1.4155	
71:29	1.3940	-47.8 °C
70:30	1.3934	-46.2 °C
65:35	1.3891	-37.5 °C
60:40	1.3845	-32.2 °C
55:45	1.3802	-27.1 °C
50:50	1.3760	-27.7 °C
45:55	1.3720	-18.7 °C
40:60	1.3676	-14.1 °C
35:65	1.3630	-12.6 °C
30:70	1.3585	-9.0 °C
25:75	1.3540	-6.9 °C
20:80	1.3498	-6.0 °C

## ENVIRONMENTAL PARAMETERS

### Aquatic toxicity

**LC<sub>50</sub>** (EPA40 CFR 797.1300 Daphnid Acute Toxicity Test) 16,150 mg/L

**LC<sub>50</sub>** (EPA40 CFR 797.1400 Fish Acute Toxicity Test) 8,225 mg/L

# TYPE-II PG BASED FLUID

## PRODUCT FEATURES

- Product conform Aerodynamic and Climatic acceptance of **AMS 1428R** and certified by **AMIL**.
- Product qualified by **SMI Inc.** on corrosion and environmental parameters.
- Product published on 2022-2023 “**FAA HOLDOVER TIME GUIDELINES**”
- Product qualified by APS Aviation on “**Very Cold Snow**” conditions and published on 2022-2023 “**FAA HOLDOVER TIME GUIDELINES**”

## PRODUCT PROPERTIES

<b>Density (20°C )</b>	1.03 - 1.07 g/cm <sup>3</sup>
<b>Refractive Index (20 °C)</b>	1.389 - 1.394
<b>Surface Tension</b>	34.00 - 42.00 dynes/cm
<b>Appearance</b>	yellow clear liquid
<b>pH (as is)</b>	6.8 - 7.5
<b>COD</b>	0.77 kg O <sub>2</sub> /kg
<b>BOD<sub>5</sub></b>	0.36 kg O <sub>2</sub> /kg
<b>Freezing Point (diluted 1:1 with water)</b>	< -10.5 °C
<b>Chemical Composition</b>	50% aqueous propylene glycol solution with corrosion inhibitors

### Minimum On-Wing Viscosities

(SC-31/13R-10 mL, 20 °C, 0,3 rpm, 30 min.)

Neat fluid	34,400 mPa.s
Diluted 50:50 with water	20,700 mPa.s

### Maximum On-Wing Viscosities

(SC-31/13R-10 mL, 20 °C, 0,3 rpm, 30 min.)

Neat fluid	50,200 mPa.s
Diluted 50:50 with water	30,700 mPa.s

### LOUT

Neat fluid	-27,0 °C
Diluted 50:50 with water	-3,5 °C

## ENVIRONMENTAL PARAMETERS

### Aquatic toxicity

<b>LC<sub>50</sub></b> (EPA40 CFR 797.1300 Daphnid Acute Toxicity Test)	7,825 mg/L
<b>LC<sub>50</sub></b> (EPA40 CFR 797.1400 Fish Acute Toxicity Test)	7,950 mg/L

# TYPE-IV PG BASED FLUID

## PRODUCT FEATURES

- Product conform Aerodynamic and Climatic acceptance of AMS 1428R and certified by AMIL.
- Product qualified by SMI Inc. on corrosion and environmental parameters.
- Product published on 2024-2025 "FAA HOLDOVER TIME GUIDELINES"

## PRODUCT PROPERTIES

Density (20°C )	1.03 - 1.07 g/cm <sup>3</sup>
Refractive Index (20 °C)	1.3884 - 1.3891
Surface Tension	34.00 - 36.00 dynes/cm
Appearance	Green Liquid
pH (as is)	6.0 - 8.0
COD	0.74 kg O <sub>2</sub> /kg
BOD <sub>5</sub>	0.33 kg O <sub>2</sub> /kg
LOUT (Lowest Operational Use Temperature)	< -29 °C
Chemical Composition	50% aqueous propylene glycol solution with corrosion inhibitors

### Minimum On-Wing Viscosities (SC-31/13R-10 mL, 20 °C, 0,3 rpm, 30 min.)

Neat fluid	50,200 mPa.s
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### Maximum On-Wing Viscosities (SC-31/13R-10 mL, 20°C , 0,3 rpm, 30 min.)

Neat fluid	60,900 mPa.s
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## ENVIRONMENTAL PARAMETERS

### Aquatic toxicity

LC <sub>50</sub> (EPA40 CFR 797.1300 Daphnid Acute Toxicity Test)	7,612 mg/L
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LC <sub>50</sub> (EPA40 CFR 797.1400 Fish Acute Toxicity Test)	7,821 mg/L
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# Runway Deicer –K-Acetate Based

## PRODUCT FEATURES

- ✳ Product conforms SAE AMS 1431 & 1435 standart and certified by AMIL.
- ✳ Product certified from SMI Inc on corrosion and environmental parameters.
- ✳ Product conforms AIRBUS AIMS09-00-002 standard and certified by SMI Inc.
- ✳ Coredeicer SW has an extended endurance time.
- ✳ Coredeicer SW contains chemical agents for the homogenous build up on surface to extend anti-icing period.
- ✳ Coredeicer SW helps to mechanical removal of ice/slush during the heavy duty machine operations.
- ✳ Low toxicity to flora and fauna
- ✳ Product does not contains chloride, nitrate, nitrite, triazole
- ✳ Helps airports meet ecological requirements

## ICE MELTING PERFORMANCE

Test Temperature: -2 °C (+28°F)

Time ( minutes)	Mass of Deicing/Anti-icing Chemical applied ml (g)	Mass of Ice Melted min (g)
5	5.00	8.11
	5.00	7.41
	5.00	7.40
10	5.00	8.91
	5.00	9.80
	5.00	9.71
30	5.00	10.30
	5.00	10.89
	5.00	9.86

## PHYSICAL PROPERTIES

✳ Freezing Point °C Neat	<-40 °C
✳ Freezing Point °C 50:50 Diluted	< -14,5 °C
✳ Water Content K.F	max. 50 %
✳ Boiling Point °C	Approx. 116 °C
✳ Density (@25°C ), g/cm <sup>3</sup>	1,27 – 1,31
✳ pH @25°C	9,0 – 11,4
✳ Appearance	Clear Colorless to Light Yellowish

# Compliances and Certifications



**RESPONSIBLE  
SOURCING  
SUPPLIER  
EXCELLENCE**



# Compliances and Certifications



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