



# *Process Oils*

---

***Sah Petroleums Limited***

# Contents

<i>Product</i>	<i>Page</i>
<b><i>Rubber Process Oils</i></b> .....	3
Aromatic .....	3
Naphthenic .....	4
Paraffinic .....	5
<b><i>Secondary Plasticiser for Thermoplastics, Elastomers &amp; Plastics</i></b> .....	5

# Process Oils

## RUBBER PROCESS OILS

Rubbers both synthetic and natural, are commercially used to convert into the final products, from a toy to the tyre of a vehicle.

Rubber Process Oils are used during the processing and production of rubber compounds. These help in improving the dispersion of fillers and flow characteristics of the compound during further processing.

Depending on the type of rubber and the end product applications, various types of rubber process oils are selected.

The range of IPOL Rubber Process Oils can be broadly divided into –

1. Aromatic types
2. Naphthenic types
3. Paraffinic types

### AROMATIC OILS

The primary characteristics of aromatic hydrocarbons is the presence of the double bonded mix ring carbon structure. Aromatic extracts procured from selected refineries and suitably blended to meet stringent specifications, are used for compounding batches to manufacture Tyres, Tubes, Hoses, Calender sheets, etc. Typical inspections of some of the IPOL Aromatic Grades are as follows -

Characteristics	Test Methods	RPO 701	RPO 702	RPO 801	RPO 150
Appearance	Visual	--	--	--	
Colour	ASTM D 1500	Greenish	Greenish	Greenish	Greenish
Kinematic Viscosity at 40° C in cSt	ASTM D 445	--	--	--	150
Kinematic Viscosity at 100° C in cSt	ASTM D 445	17-37	8-12	40-60	--
Flash Point (COC) °C, minimum	ASTM D 92	220	200	220	208
Aniline Point °C	ASTM D 611	30-50	35-55	30-50	45-60
Pour Point °C, maximum	ASTM D 97	24	21	24	6
Carbon Type Analysis	ASTM D 2140				
CA %		42	36	44	35
CN %		22	24	20	23
CP %		36	40	36	42
Acidity mgms KOH/ gm Oil, maximum	ASTM D 974	0.5	0.5	0.5	0.2
Volatile matter, % at 150° C for 1 Hour	ASTMD 972 (IS:1448 P 64)	0.2	0.3	0.5	1.3
Compatibility		NR, SBR & PBR	NR, SBR & PBR	NR, SBR & PBR	NR, SBR & PBR
Applications		Tyres, Retread Rubber, Moulded & Extruded Products			Moulded, Calendered & Extruded Products, Flooring & Rubber Sheets



## NAPHTHENIC OILS

Naphthens are a class of hydrocarbons also referred to as 'cycloparaffins'. Though their structure is similar to the aromatic ring, these are single bonded thus having a stable structure. Several such hydrocarbon rings may be linked indicating a variety of available grades.

Their unique colour stability, solubility and good thermal stability makes them ideal for moulded articles, slippers, LPG tubes, floor tiles, etc. Typical inspections of some of the IPOL Naphthenic oils are as follows -

Characteristics	Test Methods	RPO 501	RPO 507 L	RPO 507 D
Appearance	Visual	Bright & Clear	Bright & Clear	Bright & Clear
Colour	ASTM D 1500	1.5-2.0	1.0-2.0	5 max
Kinematic Viscosity at 40° C in cSt	ASTM D 445	21-25	27-37	20-24
Kinematic Viscosity at 100° C in cSt	ASTM D 445	--	--	--
Flash Point (COC) °C, minimum	ASTM D 92	160	195	160
Aniline Point °C	ASTM D 611	75-82	76-82	78-82
Pour Point °C, maximum	ASTM D 97	0	0	0
Carbon Type Analysis	ASTM D 2140			
CA %		14	14	17
CN %		20	22	23
CP %		66	64	60
Acidity mgms KOH/gm Oil, maximum	ASTM D 974	0.1	0.1	0.1
Volatile matter, % at 150° C for 1 Hour	ASTMD 972 (IS:1448 P 64)	2.1	1.3	2
Compatibility		NR, SBR, EPDM & IIR	NR, SBR, PBR, EPDM & IIR	NR, SBR, PBR, EPDM & IIR
Applications		Extruded & Moulded Articles, Micro, Hawaii Sheets, LPG Tubes, Shoe Soles, Automotive Tubes	Hawai Slippers, Micro Cellular Sheets, Butyl Tube, Garden Hose, Firefighting Hose, LPG Tubes, Floor Tiles	Micro & Hawai Sheet, Automotive Tubes



## PARAFFINIC OILS

This class of hydrocarbons constitutes branched chain or straight linked hydrocarbon molecules of various viscosities. As the chain length increases, the viscosity increases and the rubber process oil becomes more viscous. They find extensive usage in ethylene-propylene rubbers. These are most stable and have the highest flash point for a given viscosity. Typical inspections of some of the popular paraffinic type rubber processing oils are given below -

Characteristics	Test Methods	RPO 2300	RPO 2300 N	RPO 1423W	RPO 201	RPO 310
Appearance	Visual	Bright & Clear	Bright & Clear	Bright & Clear	Bright & Clear	Bright & Clear
Colour	ASTM D 1500	4.0-5.5	4.0-5.5	5.5 max	1.0-2.0	--
Kinematic Viscosity at 40° C in cSt	ASTM D 445	440-510	350-400	240-260	30-34	49-85
Flash Point (COC) °C, minimum	ASTM D 92	280	250	240	206	200
Aniline Point °C	ASTM D 611	118-124	95-100	95-105	90-100	85-100
Pour Point °C, maximum	ASTM D 97	-6	-3	3	0	12
Carbon Type Analysis	ASTM D 2140					
CA %		10	13	13	10	14
CN %		19	25	23	24	26
CP %		71	62	64	66	60
Acidity mgms KOH/gm Oil, maximum	ASTM D 974	0.1	0.1	0.1	0.1	0.1
Volatile matter, % at 150° C for 1 Hour	ASTMD 972 (IS:1448 P 64)	0.3	0.6	0.6	1.0	1.2
Compatibility		EPDM & IIR	EPDM & IIR	EPDM & IIR RECLAIM RUBBER	EPDM, IIR &	EPDM & IIR
Applications		Oil extended EPDM Rubber & Profile, Heat Resistant Conveyor Belts, Steam Hoses & Butyl Tubes	Microwave / LCM Cured EPDM Profiles & Based Products, Butyl Tubes, Radiator Hoses, Heat Resistant Conveyor Belt, Washing Machine Gasket	Butyl Tubes, EPDM Profiles, Conveyor Belts, Hoses & Other Moulded Calendered & Extruded Products	Butyl Tubes, Steam Cured, EPDM Profile, Industrial, Radiator Hoses	

## SECONDARY PLASTICISER FOR THERMOPLASTICS, ELASTOMERS & PLASTICS

### IPOL COLOMIX

Secondary Plasticizer for Thermoplastic Elastomers & Plastics.

IPOL Colomix 120 / 240 / 300 are bright and clear paraffinic oils recommended for use as dispersing agent and process aid for polymers.

IPOL Colomix grades are used for Colour Master batches. These are used in various polymers, filler master batches, thermoplastic elastomers and coloured articles based on polyolefins.

Characteristics	Test Methods	Colomix 120	Colomix 240	Colomix 300
Appearance	Visual	Bright & Clear	Bright & Clear	Bright & Clear
Colour	ASTM D 1500	0.5 max	0.5 max	0.5 max
Specific Gravity at 30° C	ASTM D 1298	0.820 min	0.820 min	0.825 min
Kinematic Viscosity at 40° C in cSt	ASTM D 445	11 min.	22 min.	28 min.
Flash Point (COC) °C	ASTM D 92	180 min.	210 min.	220 min.
Pour Point °C	ASTM D 97	-12 min.	-12 min.	-9 min.
Aniline Point °C	ASTM D 611	100° C min.	115° C min.	120° C min.
Volatile Loss at 100° C / 3 hrs.	ASTMD 972	0.50 max.	0.50 max.	0.50 max.

## RUBBER PROCESS OILS