

BEHRAN OIL CO.
www.behranoil.com



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PRODUCTS GUIDE II

BEHRAN PARAFFIN WAX



INTRODUCTION

WAX is an organic, plastic-like substance that is solid at ambient temperature and becomes liquid when melted. In general terms waxes are naturally or synthetically derived.

Crude oil is transported to refineries where it is refined into finished products by complex processes. One of the many products derived from refining is lube/base oils. The waxes are produced in the lube/oil refining process.

Petroleum waxes as a mixture of hydrocarbons are classified in three general categories. They include microcrystalline and semi-microcrystalline paraffin wax. Behran Paraffin Waxes are microcrystalline and provide a wide variety of physical characteristics such as oil content and melting point, can be used in a wide range of industries.

PRODUCTION OF PETROLEUM WAXES

Base oils are produced in a series of steps which are designed to enhance certain desirable properties such as viscosity index, low temperature properties. In base oil production process, the solvent extracted lube fraction is dewaxed by chilling to a low temperature which removes much of the wax.

This improves the low temperature fluidity of the product and produces dewaxed lube fractions and slack wax. Figure 1 illustrates refining process in Behran oil Co.

Through deoiling/sweating of slack wax, paraffin waxes are obtained.

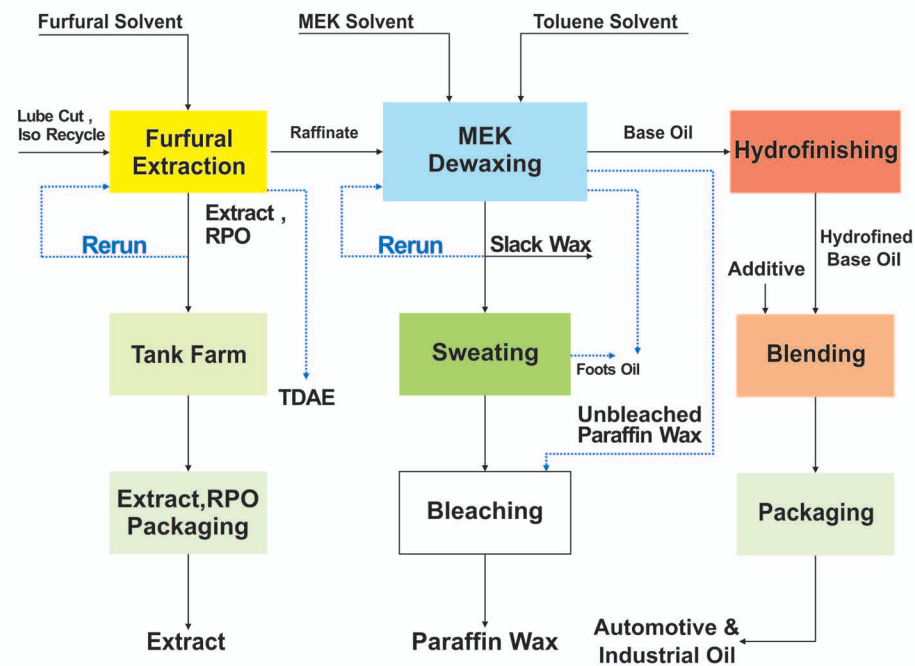


Figure 1: process of wax production in Behran oil co.

PARAFFIN WAX APPLICATIONS

TYPE OF INDUSTRY	APPLICATION	TYPE OF INDUSTRY	APPLICATION
candles	Fuel, drop Point regulations	Recycling	Compatibility sizing
Printing Inks	improvement of Rub Resistance, Slip	Ceramics and Metals	Binders for sintering
Paints and Coatings	Matting, surface protection	Paper and Cardboard	Surface Hardening
Building	Modification of Bitumen, Anti-Graffiti treatment	Polishes	Surface Protection of Leather, Floors, Cars
Explosives	Stabilization, Binding Agent, Plasticizing Agent	Timber Industry	Water Proofing, providing Flexibility and Consistency
Matches, Pyrotechnics	Impregnations, Fuel	Rubber Industry	Release Agents Enhancing Rigidity Surface Hardening
Electrical and Electronics	Release Agent, Insulating Material and Etching Bases	Crayons and Wax Pastels	Vehicle for Pigments, Regulates Hardness
Adhesive and Hot melts	Viscosity Regulation Lubrication, Surface Hardening	Cosmetics	Binder and Consistency Regulation for Ointments, Pastor, Lipsticks, Creams
Packaging	Laminating, adhesive, Control flexibility, moisture barrier coating	Textile	Reinforce, Providing Water Proofing and Improving Tactile and Visual Aspect
Fire Logs	Binding Agent for Wood Particles, Helping Long Control Combustion	Plastics	lubrication (Poly Vinyl Chloride), Release Agents (poly Amide), Pigment Carriers (Master Batch)
Foods	Citrus fruits and cheese Coating, Chewing gum Base (control chewy texture), Confectionary	Medicine and Pharmaceutical	Molding & Release Agents in Dental Laboratories Retardants, Surface Hardening Of pills

BEHRAN PARAFFIN WAX

TYPICAL CHARACTERISTICS

Paraffin Wax Grade	Oil Content	Melting Point	Color min	Penetration	Viscosity@
	%wt max. ASTM D-721	°c ASTM D-87	SUS Saybolt	0.1mm@25°C ASTM D-1321	100°C(cSt) ASTM D-445
L1	1	60-62	28	18-23	3.6-4.4
L2	2	58-60	28	18-23	3.6-4.4
L3	3	58-61	28	18-23	3.6-4.4
L5	5	55-60	-	18-23	3.6-4.4
L10	10	54-59	-	18-23	3.6-4.4
UL1	1	58-61	29	24	3.6-4.4
UL2	2	58-61	29	24	3.6-4.4
M1	1	62-66	28	15-19	4.5-6.4
M2	2	62-66	28	15-19	4.5-6.4
M3	3	61-65	28	15-19	4.5-6.4
M5	5	60-65	-	15-19	4.5-6.4
M10	10	60-65	-	15-19	4.5-6.4
MB1	1	64-66	25	19	4.5-6.4
MB2	2	64-66	25	19	4.5-6.4
H1	1	68-71	18	-	6.0-8.0
H2	2	68-71	22	Max 23	6.0-8.0
H3	3	68-71	18	Max 23	6.0-8.0
H5	5	68-71	-	-	6.0-8.0
H10	10	66-69	-	-	6.0-8.0

PACKAGING

Slabs (25*50*4cm) In carton (app.24 kg)

Granules packed in one plastic bag in carton (app.16 kg)



BEHRAN UNBLEACHED PARAFFIN WAX

TYPICAL CHARACTERISTICS OF AROMATIC PROCESS OIL

Unbleached Paraffin Wax Grade	Oil Content	Melting Point	Color Max	Penetration	Viscosity@
	wt % max. ASTM D-721	°c ASTM D-87	ASTM D-1500	0.1mm@25°C ASTM D-1321	100°C(cSt) AST D-445
M1	1	62-66	1	15-19	4.5-6.4
M 2	2	62-66	1	15-19	4.5-6.4
M 3	3	61-66	1	15-19	4.5-6.4
M 5	5	60-65	1	15-19	4.5-6.4
M 10	10	60-65	1	15-19	4.5-6.4
H1	1	68-71	1	-	6.5-8.0
H2	2	68-71	1	21-28	6.5-8.0
H3	3	68-71	1.5	21-28	6.5-8.0
H5	5	68-71	1.5	-	6.5-8.0
H10	10	66-69	2	-	6.5-8.0

PACKAGING

Bulk by vessel

ISO tank

Slabs (25*50*4cm) In carton (app.24 kg)

Granules packed in one plastic bag in carton (app.16 kg)

One ton Jumbo bag

208 liter steel drum

BEHRAN SLACK WAX

INTRODUCTION

Slack wax, a mixture of oil and wax, is a byproduct of base oil refinery process, which serves as a feed stock and, is further refined to produce paraffin waxes.

Behran Slack Wax can be used as blending components or a water proofing agent in the manufacture of various industrial products such as candles, canvass coatings and composite wood panels.

These waxes can also function as controlled release agents for various chemicals and fertilizers.

TYPICAL CHARACTERISTICS

Slack Wax Grade	Oil Content	Congeeing Point	Viscosity@	Appearance Visual
	wt % max. ASTM D-721	°c ASTM D-938	100°C(cSt) ASTM D-445	
Behran Ultra Light Slack wax	23	49-51	3.9	Creamish
Behran Light Slack wax1	31	47-59	3.8-4.4	Creamish
Behran Light Slack wax2	31	52-59	4.5-6.5	Yellow
Behran heavy Slack wax1	33	57-65	6.6-10.5	Light Brown
Behran heavy Slack wax2	33	57-65	6.6-10.5	Dark brown

PACKAGING

Bulk by vessel

ISO tank

One ton Jumbo bag

208 liter steel drum



BEHRAN FOOTS OIL

INTRODUCTION

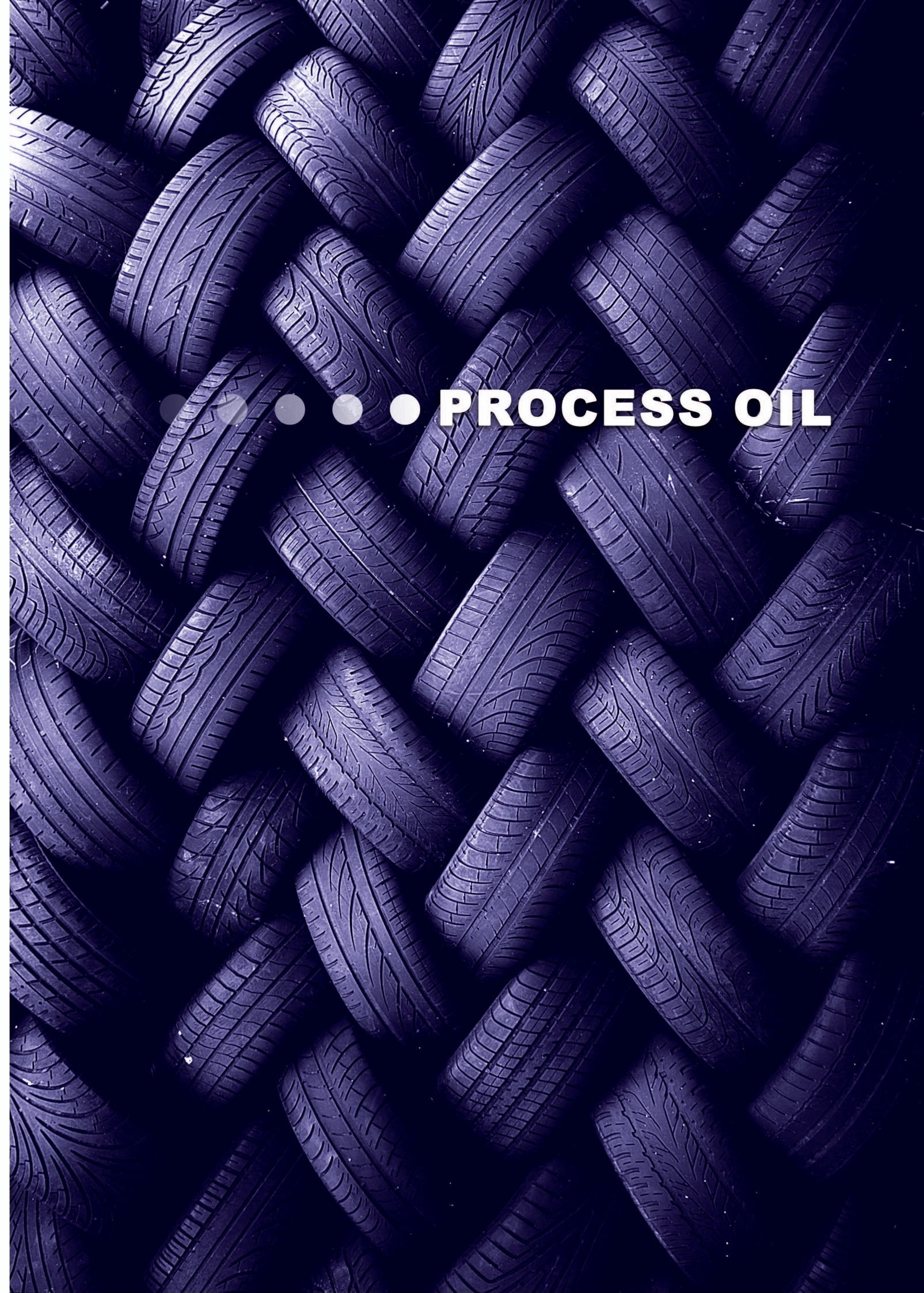
Foots oil or residue wax, is a byproduct obtained through slack wax deoiling or sweating in the paraffin wax manufacturing process. It is used in textile, leather and rubber industries as well as petroleum jelly and white oil manufacturing.

TYPICAL CHARACTERISTICS

Foots Oil Grade	Oil Content wt% ASTM D-721	Congealing point °C ASTM D-938	Viscosity @ 100°C(cSt) ASTM D-445	Color ASTM D-1500
LIGHT	25-40	40	3.6-4.6	1.5
MEDIUM	20-50	25	4.7-6.9	2.0
HEAVY	25-50	25	7-11.5	2.5

PACKAGING

20 ton flexi bag
208 liter steel drum



MINERAL BASE OILS

INTRODUCTION

Solvent Neutral mineral base oils are prepared from crude oil derivatives according to the following processes.

Distillation, to adjust the viscosity and flash point;

■ Refining, to improve viscosity temperature characteristics e.g. viscosity index (solvent extraction with furfural);

■ Dewaxing, to improve the low temperature properties (M.E.K dewaxing).

■ Hydrofinishing, to remove undesirable impurities from petroleum distillates (such as sulfur and nitrogen compounds and olefins).

Base stocks, obtained after above listed operations are called Solvent Neutral Base Oil (SN) which are distinguished with numbers according to their approximate SUS viscosity at 40°C such as SN 90, SN150, SN350, SN500 etc.

In the Behran's modernized refinery plant, we use Lube-cut obtained from domestic petroleum oil refineries, to produce virgin mineral base oils base oil group I. High quality low oil paraffin waxes are also produced by "sweating process" which is in compliance with the environmental health care.



TYPICAL CHARACTERISTICS OF SN 90

SPECIFICATION	Test method	Min.	Typical	Max.
Kinematic Viscosity @40 °C (cSt)	ASTM D-445	-	20	-
Kinematic Viscosity@100 °C (cSt)	ASTM D-445	3.5	-	4.2
Viscosity Index	ASTM D-2270	-	100	-
Flash point (COC) °C	ASTM D-92	170	-	-
Pour point °C	ASTM D-97	-	-	-6
Carbon residue (conradson) Wt%	ASTM D-189	-	0.05	-
Total Acid Number mg KOH/g	ASTM D-664	-	-	0.05
Demulsibility	ASTM D-1401	-	Pass	-
Sulfur Content Wt%	ASTM D-1552	0.15	-	0.6
Color	ASTM D-1500	-	0.5	1
Density @15 °C Kg/m ³	ASTM D-4045	-	870	-
Copper Corrosion (3hrs@ 100 °C)	ASTM D-130	-	-	1A
Foam ml	ASTM D-892	-	Nil	-

PACKAGING

Bulk by vessel

ISO Tank

20 ton flexi bag

208 liter steel drum

TYPICAL CHARACTERISTICS OF SN 150

SPECIFICATION	Test method	Min.	Typ	Max.
Kinematic Viscosity @40 °C (cSt)	ASTM D-445	-	32	-
Kinematic Viscosity@100 °C (cSt)	ASTM D-445	4.2	-	5.6
Viscosity Index	ASTM D-2270	-	100	-
Flash point (COC) °C	ASTM D-92	190	-	-
Pour point °C	ASTM D-97	-	-	-6
Carbon residue (conradson) Wt%	ASTM D-189	-	0.06	-
Total Acid Number mg KOH/g	ASTM D-664	-	-	0.05
Demulsibility	ASTM D-1401	-	Pass	-
Sulfur Content Wt%	ASTM D-1552	0.15	-	0.6
Color	ASTM D-1500	-	0.5	1
Density @15 °C Kg/m ³	ASTM D-4052	-	875	-
Copper Corrosion (3hrs@ 100 °C)	ASTM D-130	-	-	1A
Foam ml	ASTM D-892	-	Nil	-

TYPICAL CHARACTERISTICS OF SN 350

SPECIFICATION	Test method	Min.	Typ.	Max.
Kinematic Viscosity @40 °C (cSt)	ASTM D-445	-	75	-
Kinematic Viscosity@100 °C (cSt)	ASTM D-445	8	-	9.3
Viscosity Index	ASTM D-2270	-	95	-
Flash point (COC) °C	ASTM D-92	220	-	-
Pour point °C	ASTM D-97	-	-	-6
Carbon residue (conradson) Wt%	ASTM D-189	-	0.06	-
Total Acid Number mg KOH/g	ASTM D-664	-	-	0.05
Demulsibility	ASTM D-1401	-	Pass	-
Sulfur Content Wt%	ASTM D-1552	0.15	-	0.6
Color	ASTM D-1500	-	2	-
Density @15 °C Kg/m ³	ASTM D-4052	-	880	-
Copper Corrosion (3hrs@ 100 °C)	ASTM D-130	-	-	1A
Foam ml	ASTM D-892	-	Nil	-

PACKAGING

Bulk by vessel

ISO Tank

20 ton flexi bag

208 liter steel drum

TYPICAL CHARACTERISTICS OF SN 500

SPECIFICATION	Test method	Min.	Typ.	Max.
Kinematic Viscosity @40 °C (cSt)	ASTM D-445	-	-	-
Kinematic Viscosity@100 °C (cSt)	ASTM D-445	10.2	-	11.9
Viscosity Index	ASTM D-2270	-	90	-
Flash point (COC) °C	ASTM D-92	240	-	-
Pour point °C	ASTM D-97	-	-	-6
Carbon residue (conradson) Wt%	ASTM D-189	-	-	0.3
Total Acid Number mg KOH/g	ASTM D-664	-	-	0.05
Demulsibility	ASTM D-1401	-	Pass	-
Sulfur Content Wt%	ASTM D-1552	-	-	-
Color	ASTM D-1500	-	2.5	-
Density @15 °C Kg/m ³	ASTM D-4052	-	892	-
Copper Corrosion (3hrs@ 100 °C)	ASTM D-130	-	-	1A
Foam ml	ASTM D-892	-	Nil	-

TYPICAL CHARACTERISTICS OF SN 600

SPECIFICATION	Test method	Min.	Typ.	Max.
Kinematic Viscosity @40 °C (cSt)	ASTM D-445	-	-	-
Kinematic Viscosity@100 °C (cSt)	ASTM D-445	12	-	13.8
Viscosity Index	ASTM D-2270	-	90	-
Flash point (COC) °C	ASTM D-92	242	-	-
Pour point °C	ASTM D-97	-	-	-6
Carbon residue (conradson) Wt%	ASTM D-189	-	-	0.3
Total Acid Number mg KOH/g	ASTM D-664	-	-	0.05
Demulsibility	ASTM D-1401	-	Pass	-
Sulfur Content Wt%	ASTM D-1552	-	-	-
Color	ASTM D-1500	-	2.5	-
Density @15 °C Kg/m ³	ASTM D-4052	-	895	-
Copper Corrosion (3hrs@ 100 °C)	ASTM D-130	-	-	1A
Foam ml	ASTM D-892	-	Nil	-

PACKAGING

Bulk by vessel
ISO Tank
20 ton flexi bag
208 liter steel drum

BEHRAN RPO (RUBBER PROCESS OIL)

Process oil for Rubbers, Elastomers and Adhesives

USES

It is known that the modern rubber compounding processes requires high speed mixing and short mixing periods with proper polymer consistency for rapid processing.

The function of Behran rubber Process Oils is to improve the physical properties of vulcanization to reduce the cost of the finished rubber compounds.

PROPERTIES

Behran Rubber Process Oils are intermediate products with excellent process ability, loading (filler) characteristics and tensile properties.

Behran Rubber Process Oils are perfect intermediate products to optimize the required conditions. The compounder can achieve a workable mass with adequate dispersion of fillers through selection of the correct process oils.

Behran Rubber Process Oils are efficient secondary plasticizers that reduce costs.

Behran Rubber Process Oils are offered in two kinds: Aromatic and Paraffinic.

TYPICAL CHARACTERISTICS OF AROMATIC PROCESS OIL

SPECIFICATION	Test Method	Behran RPO 245	Behran RPO 250	Behran RPO 290	Behran Furfural Extract (DAE)
Density @ 15°C kg/m ³	ASTM D-1298	980-1040	990-1020	980-1015	980-1040
Flash point (COC) °C	ASTM D-92	200	245	230	Min .180
Kinematic Viscosity@100 °C cSt	ASTM D-445	6-12	50-80	19-28	7-65
VGC	ASTM D-2501	Max 0.96	0.96	0.96	0.96
Aniline Point °C	ASTM D-611	Max 26	Max 32	Max 32	-

*DAE (Distillate aromatic extracts) is oil for carbon black manufacturing feed.

TYPICAL CHARACTERISTICS OF PARAFFINIC PROCESS OIL

SPECIFICATION	Test Method	Behran RPO 840
Density @ 15°C kg/m ³	ASTM D-1298	900
Flash point (COC) °C	ASTM D-92	184
Kinematic Viscosity @100 °C cSt	ASTM D-445	Min 5
@40 °C cSt		21-28
VGC	ASTM D-2501	Max. 0.850
Aniline Point °C	ASTM D-611	79

PACKAGING

Bulk by vessel
ISO Tank
20 ton flexi bag
208 liter steel drum



BEHRAN TDAE

Safe Process Oil

USES

Behran TDAE (Treated Distillate Aromatic Extract) is a non-carcinogenic mineral oil, used as an aromatic process oil to manufacture oil-extended natural or synthetic rubber and tire compounds.

PROPERTIES

- Good abrasion resistance
- Good low temperature flexibility
- Low amounts of waste tires in the process
- Good resistance to reversion
- Saves fuel and energy consumption
- Extends the lifetime of tires
- Low environmental impact

TYPICAL CHARACTERISTICS

SPECIFICATION	Unit	Test Method	Result
Appearance	-	Visual	Dark
Density @ 15°C	kg/m ³	ASTM D-1298	953
Flash point (COC) °C	°C	ASTM D-92	246
Congealing Point	°C	ASTM D-938	33
Total Acid Number	Mg KOH/gr	ASTM D-974	0.12
Kinematic Viscosity@40 °C (cSt)	cST	ASTM D-445	549.48
Kinematic Viscosity@50 °C (cSt)	cST	ASTM D-445	260.8
Kinematic Viscosity@100 °C (cSt)	cST	ASTM D-445	19.65
RI@20 °C	-	ASTM D-1218	1.5227
RI@67 °C	-	ASTM D-1218	1.5113
VGC	-	ASTM D-2501	0.895
Aniline Point	°C	ASTM D-611	63
Refractivity Intercept	-	AMS 140.13	1.051
Water Content (Karl Fischer)	ppm	ASTM D-6304	412.2
Sulphur Content	(W/W)%	ASTM D-2622	Max 3
Carbon Type Distribution	CA/CN/CP	AMS 140.13	23/39/38
Content Of PCA Extract	(W/W)%	IP 346	2.2

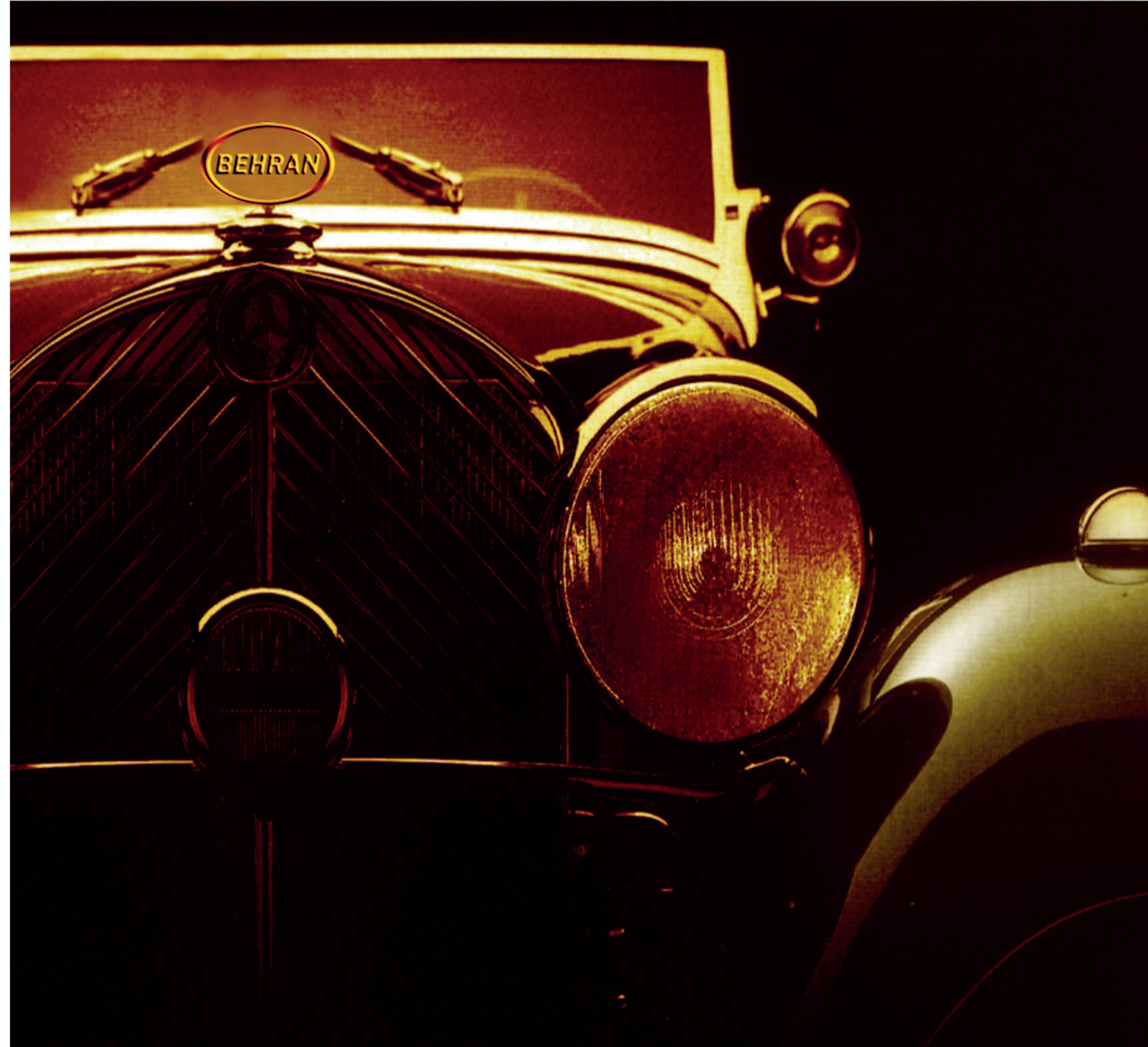
PERFORMANCE SPECIFICATION

According to international standards (EU 2005/69/EC)

PACKAGING

- Bulk by vessel
- ISO Tank
- 20 ton flexi bag
- 208 liter steel drum

*This product complies with REACH requirements.



With more Than
50 Years
 Experience in Producing
 Different Kinds of Process Oils

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