NYCO INDUSTRY & AUTOMOTIVE

NYCOBASE FG SERIES

HIGH PERFORMANCE SYNTHETIC ESTERS

FOR INCIDENTAL FOOD CONTACT LUBRICANTS

NSF Nonfood Compounds Program Listed

DESCRIPTION

Nycobase food grade series are NSF HX-1 registered synthetic esters, for use in NSF H1 registered lubricants for incidental food contact.

APPLICATION

Nycobase food grade series are high performance synthetic esters, specifically developed to formulate a large range of lubricants suitable for many applications in the food industry.

Combinations of Nycobase 20307 FG, 30401 FG, 30502 FG, 43203 FG, 43608 FG, 45004 FG and 46115 FG allow to reach ISO VG 22 to ISO VG 460 lubricants, suitable for:

- Hydraulic fluids
- Gear oils
- Chain oils
- Greases

ADVANTAGES

- **Superior thermal stability**
- **Good low temperature properties**
- **Large viscosity range**
- **Good overall compatibility with PAOs for several grades (Nycobase 20307 FG, 30401 FG, 30502 FG, 43608 FG)**
- **Biodegradable, with high contents of renewable carbon**
- **Halal and Star-K Kosher (Pareve) certified**

The above values are typical results. They do not constitute any contractual commitment.
Sales specifications are available upon request. The present technical data sheet replaces all previous editions.

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Properties	Unit	Results							
		Nycobase 20307 FG	Nycobase 30401 FG	Nycobase 30502 FG	Nycobase 43203 FG	Nycobase 43608 FG	Nycobase 45004 FG	Nycobase 46115 FG	Test method
NSF registration n°		148533	141593	141591	141592	151777	143760	146569	-
Limitation in mass %		5	None	None	None	None	None	None	-
Colour GARDNER	-	<1	<1	<1	4	3	4	3	ISO 4630
Density at 20°C	kg/dm³	0.913	0.942	0.938	1.013	0.950	0.949	0.957	ISO 12185
Flash point COC	°C	224	255	267	276	278	284	286	ISO 2592
Pour point	°C	-66	-45	-36	-33	-39	-33	-6	ISO 3016
Acid number	mg KOH/g	0.05	0.05	0.05	0.05	0.10	0.10	0.10	ISO 6618
Kinematic viscosity **100°C** **40°C** **-18°C**	mm²/s	3.3 11.7 193	4.5 20.0 455	5.0 23.0 547	34.0 325 44500	36.2 320 -	50.3 488 63100	622 10077 -	ISO 3104
Viscosity Index	-	164	143	150	147	160	163	243	ISO 2909
Evaporation loss **6 h - 200°C**	%	12	2.2	1.5	2.8	1.2	1.1	0.9	ASTM D972
Iodine number	g I_2/100 g	<1	<1	2	<1	17	20	22	ISO 3961
Water content	mg/kg	200	200	200	200	200	200	200	ASTM D1533
Biodegradability	%	84	78	76	66	56	46	-	OECD 301B
Renewable carbon content	%	38	81	81	54	85	86	87	Calculation

TNB food gradeE11a

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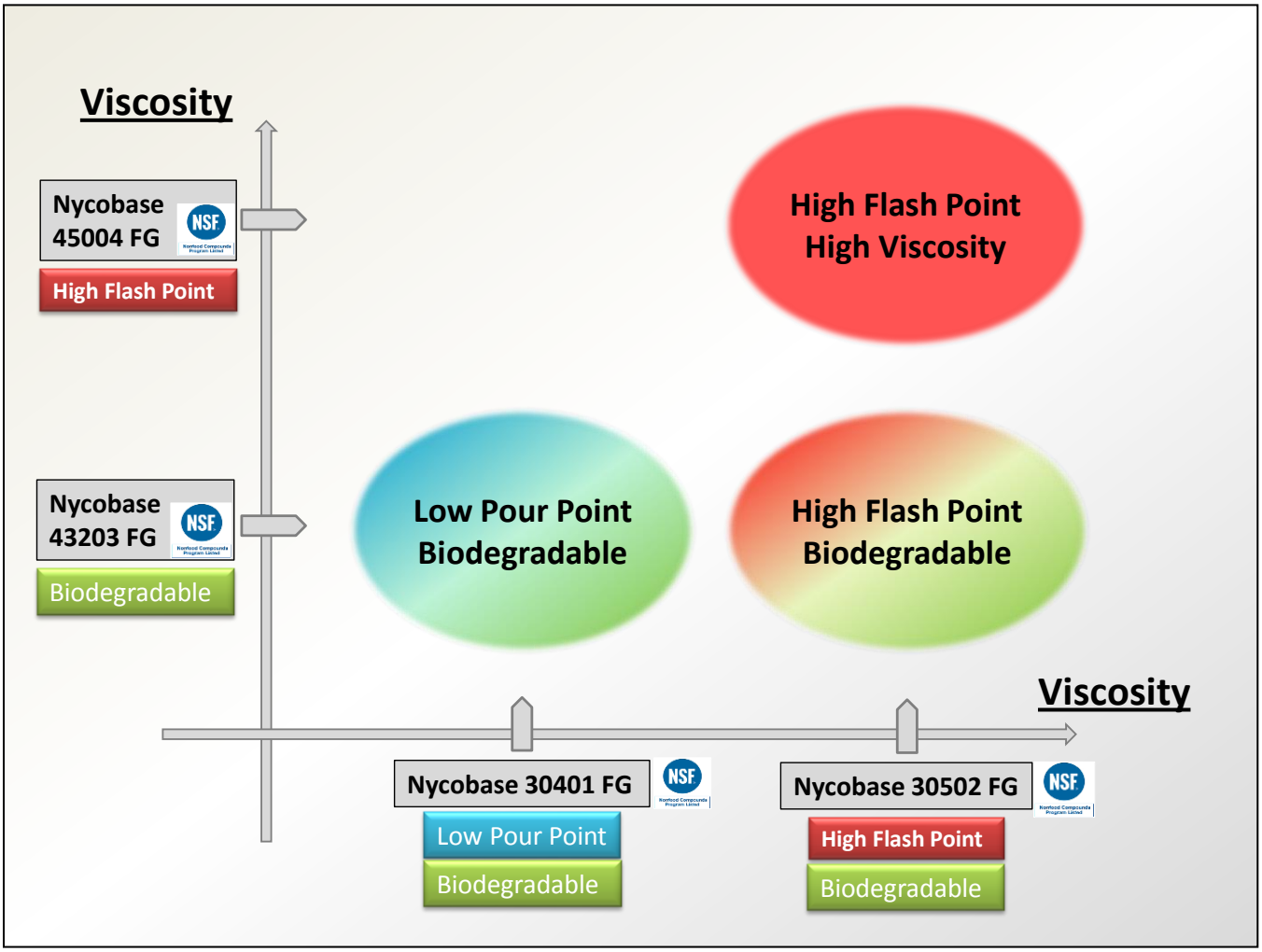
FORMULATION GUIDELINES

- Blends of Nycobase 30401 FG and Nycobase 43203 FG will result in very low pour point base stocks, from ISO VG 22 to ISO VG 46.

- Blends of Nycobase 30502 FG and Nycobase 45004 FG will result in base stocks from ISO VG 22 to ISO VG 460 showing low evaporation rates, high flash points and good lubricating properties. Nycobase 43608 FG is a direct ISO VG 320 fluid.



- Nycobase 20307 FG is suitable for ultra-low temperature applications.
- Nycobase 45004 FG may be used when a combination of high viscosity esters and PAO is investigated to formulate gear oils.
- Nycobase 46115 FG is very useful as a thickener for greases and gear oils.

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NYCOBASE FG SERIES

Mixed with NSF HX-1 registered additives, Nycobase food grade series allow to obtain H1 registered lubricants for incidental food contact (formulation must be submitted to NSF for registration). NSF White Book of HX-1 registered products is available on NSF website: www.nsfwhitebook.org.

Nycobase food grade series are suitable for the formulation of high performance, long life hydraulic fluids, gear oils, high temperature chain oils and a large variety of greases.

In addition, Nycobase Food Grade esters are biodegradable and show high contents of renewable carbon.

Properties	Nycobase 30401 FG	Nycobase 30502 FG	Nycobase 43203 FG	Nycobase 43608 FG	Nycobase 45004 FG	Density at 20°C	Viscosity at 100°C	Viscosity at 40°C	Flash point	Pour point	Biodegradability	Renewable carbon content
Units	%	%	%	%	%	kg/dm³	mm²/s	mm²/s	°C	°C	%	%
ISO VG 22 Std & Bio	--	100	--	--	--	0.938	5.0	23	267	-36	76	81
ISO VG 22 low temp & Bio	100	--	--	--	--	0.942	4.5	20.0	255	-45	78	81
ISO VG 32 Std & Bio	--	82	18	--	--	0.951	6.8	34	270	-39	>65	77
ISO VG 32 low temp & Bio	80	--	20	--	--	0.956	6.4	32	263	-54	>65	76
ISO VG 46 Std & Bio	--	70	30	--	--	0.960	8.5	47	276	-42	>65	74
ISO VG 46 low temp & Bio	65	--	35	--	--	0.966	8.4	47	270	-54	>65	72
ISO VG 68 Std & Bio	--	55	45	--	--	0.971	11.2	68	277	-48	>65	69
ISO VG 100 Bio	--	40	60	--	--	0.982	14.7	101	271	-45	>65	66
ISO VG 100 Std	--	52	--	--	48	0.944	15.1	100	270	-39	>60	83
ISO VG 150 Bio	--	25	75	--	--	0.994	19.7	153	268	-39	>65	62
ISO VG 150 Std	--	39	--	--	61	0.945	21.3	150	270	-39	>50	84
ISO VG 220 Bio	--	12	88	--	--	1.004	25.3	219	275	-36	>65	58
ISO VG 220 Std	--	27	--	--	73	0.948	28.0	220	270	-36	>50	84
ISO VG 320 Bio	--	--	100	--	--	1.013	34.0	325	276	-33	66	54
ISO VG 320 Std	--	--	--	100	--	0.950	36.2	320	278	-39	56	85
ISO VG 460 Std	--	3	--	--	97	0.950	48.2	460	270	-33	>47	86

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