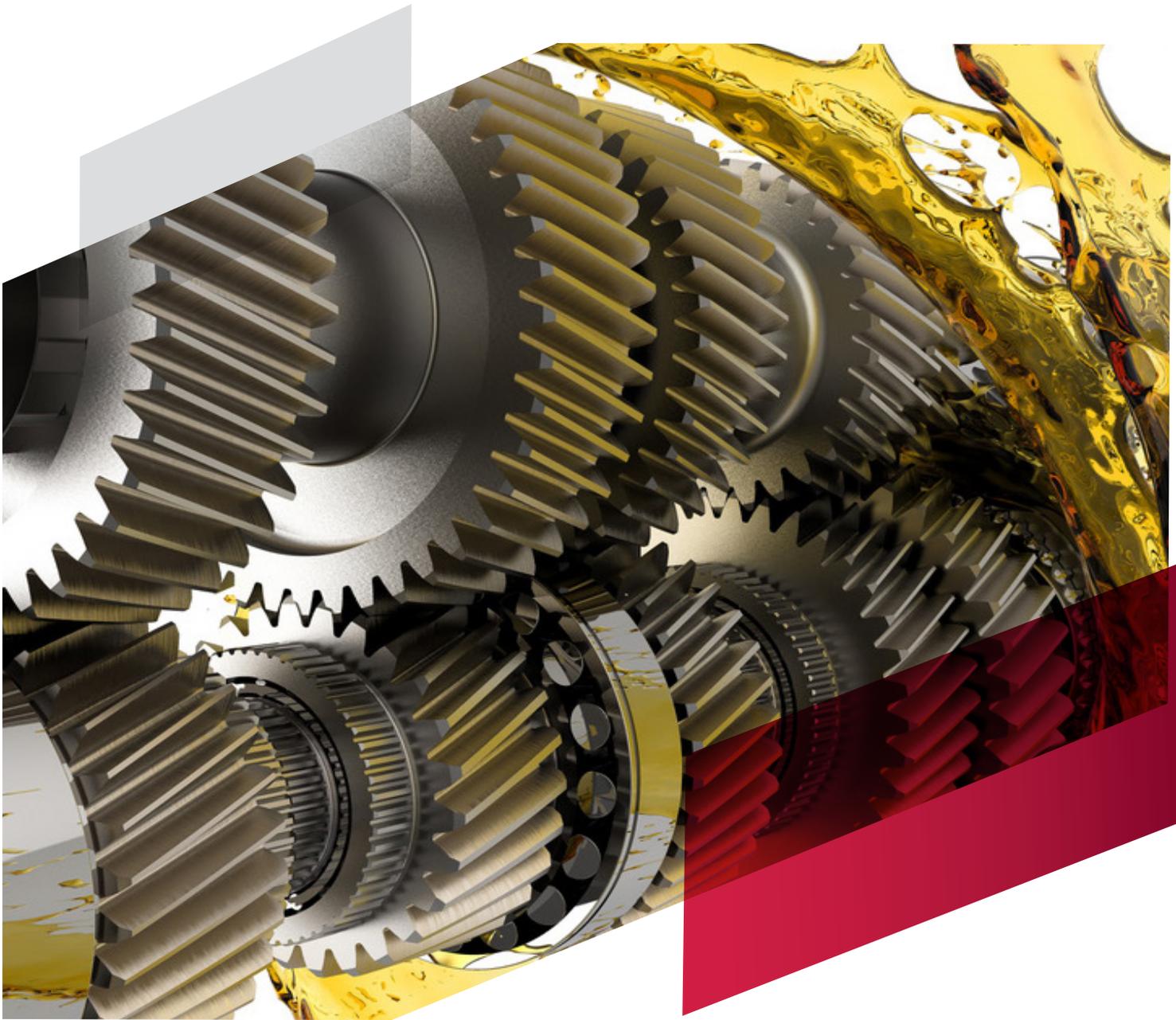


NELSON BROTHERS

TRANSPORTATION GUIDE



LUBRICANT AND
FUEL ADDITIVES





OUR PARRISH FACILITY

- + Norfolk Southern rail line with 24 car spots
- + Onsite drum and tote filling station
- + Small container inbound & outbound warehousing
- + Pilot plant facility for project scale ups
- + FEMA recognized low risk hurricane zone

TOLL MANUFACTURING

CAPABILITIES

- + Maleation
- + Isomerization
- + Amination
- + Dehydration
- + Esterification
- + Addition Reactions
- + Blending
- + Boronation
- + Condensation

MANUFACTURING EQUIPMENT

- + Vacuum Capability
- + Dehydration Tower
- + Residual Stripping Columns
- + Nitrogen Sparging Systems
- + Azeotropic Distillation (Dean Stark)
- + Heat Traced Piping
- + Internal Cooling Loops
- + Mixing Tanks
- + Storage Tanks
- + Pressure Leaf Filter
- + Plate Filters
- + Bag Filtration

REACTORS

- (1x) 7,500 gallon C-276 Hastelloy
- (1x) 7,500 gallon 304L SS
- (1x) 3,500 gallon 316L SS
- (1x) 4,500 gallon 316L SS
- (1x) 11,500 gallon 316L SS
- (2x) 8,500 gallon 316L SS
- (5x) 7,500 gallon 316L SS

INSTRUMENTATION AND TESTING

- + Turbiscan
- + Coulometric Water Titrator
- + Microviscometer
- + Nitrogen Analyzer
- + FTIR Spectroscopy
- + Automatic Flash Point Analyzer
- + Acid/Base Titrations
- + Particle Size Analyzer
- + Tensiometer
- + Inductively Coupled Plasma (ICP)
- + GC/MS/FID
- + LIMS

PRODUCT RANGE

LUBRICANT AND FUEL ADDITIVES (PIBSI)

PRODUCT	Application and Benefits	Viscosity @100°C, cSt	TBN mg KOH/g	Nitrogen % wt.	Boron % wt.
NBSC 7101	Fuel detergent that improves combustion efficiency and prevents the formation of deposits.	50	90	4.1	-
NBSC 7601	Lower viscosity multi-functional lubricant dispersant for transportation applications.	80	50	2.2	-
NBSC 7602	Borated dispersant provides acid, wear, and deposit control for engines. Enhances corrosion protection and antiwear performance by hindering metal-to-metal contact by adsorption.	100	47	2.3	0.6
NBSC 7603	Multi-functional lubricant dispersant for transportation applications. Offers enhanced engine cleanliness by dispersing sludge and soot agglomeration.	210	80	3.2	-
NBSC 7604	Bis-succinimide general purpose primary dispersant with multi-functional fit in the transportation lubricant market.	460	76	3.2	-
NBSC 7606	1300 MW dispersant that inhibits carbon deposits and sludge build-up.	180	21	1.3	-
NBSC 7607	2300 MW dispersant that inhibits carbon deposits and sludge build-up.	240	25	1.2	-
NBSC 7608	Borated dispersant provides acid, wear, and deposit control for engines. Enhances corrosion protection and antiwear performance by hindering metal-to-metal contact by adsorption.	250	40	2.2	1.0
NBSC 7609	Multi-functional lubricant dispersant for transportation applications. Offers enhanced engine cleanliness by dispersing sludge and soot agglomeration.	650	80	3.8	-

SUCCINIC ANHYDRIDES (SA)

PRODUCT	Description	Viscosity @100°C, cSt	Acid Value mg KOH/g	Residual MA	Residual Olefin	Saponification mg KOH/g
NBSC 7201	1000 MW PIBSA	480	55	< 0.5	-	100
NBSC 7202	450 MW PIBSA	75	80	< 0.5	-	-
NBSC 7203	750 MW PIBSA	415	69	< 0.15	-	-
NBSC 7204	1300 MW PIBSA	800	34	< 0.5	-	60
NBSC 7205	2300 MW PIBSA	2000	21	< 1.0	-	-
NBSC 7801	C16 ASA i-HDSA	7	176	< 0.10	< 4.0	350
NBSC 7802	C18 ASA i-ODSA	8	160	< 0.10	< 4.0	320
NBSC 7806	C12 TPSA	8	-	< 0.10	< 4.0	410
NBSC 7807	C12 DDSA	8	-	< 0.10	< 4.0	410



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