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The First Link In The Chain

The link to oil cleanliness typically starts with the lubricant blender, goes through the distributor/marketer and terminates with the end user. Here, in the second installment of this series (which began in the May/June 2008 issue *Lubrication Management & Technology*) the authors examine the process of blending finished lubricants and its effect on oil cleanliness, as well as discuss the evaluation process used in their research.

How much do you know about the blending process and its effect on oil cleanliness? Is that where the trouble starts?

There are many different lubricant blenders in the U.S.—some very large and some small. In this series, the general practices of large, major oil company blenders and some of the medium-size specialty lubricant suppliers are examined.

The blending process

The typical flow through a blend plant is characterized by Fig. 1. The process begins with receiving of the base stocks that are shipped to large facilities by pipeline, barge or rail. Smaller facilities receive base stocks by rail or truck.

Base stocks usually are not filtered before being introduced in the blend tank, but there are some exceptions. One blender company filters all base stocks shipped by barge, rail and truck with a 25 micron filter. Additives come in many package styles, including drums, totes and bulk. They typically are not filtered before being introduced in the blending tank. Hydraulic and turbine oils contain less than 1% additives, so cleanliness is not as important as it is for base stocks

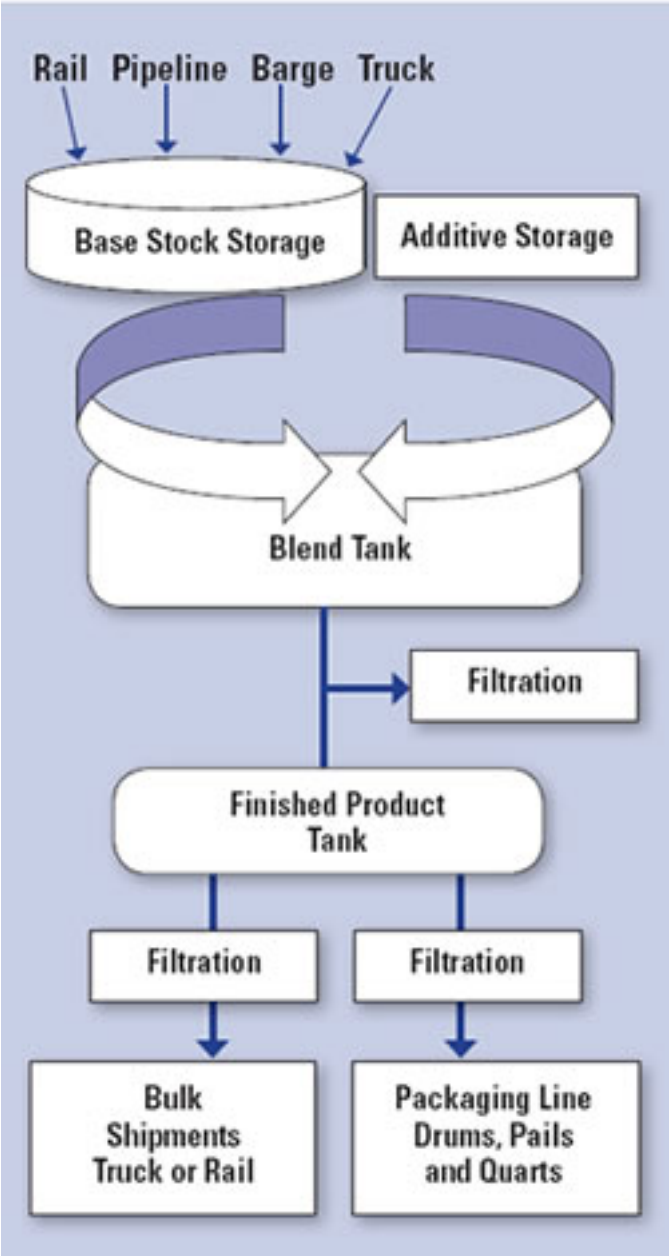

Fig. 1. Typical flow through a blend plant

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Supplier	Viscosity, cSt	Particle Count, ISO	Water, ppm
A	31.1	16/14/11	31
B	33.1	19/15/10	37
C	33.4	18/15/10	28
D	32.0	16/13/09	31

[redacted]

Supplier	Viscosity, cSt	Particle Count	Water, ppm
A	43.9	16/14/10	56
B	48.7	20/17/12	230
C	43.7	17/13/10	97
D	45.9	15/13/09	138
E	35.0	22/18/11	543

[redacted]

Supplier	Viscosity, cSt	Particle Count	Water, ppm
A	93.1	16/14/10	56
B	104.1	19/17/11	39
C	100.8	17/14/10	42
D	98.7	15/13/10	26

[redacted]

Supplier	Viscosity, cSt	Particle Count	Water, ppm
A	209.0	21/17/10	56
B	215.5	20/18/12	203
C	224.1	20/16/11	47
D	215.4	21/19/12	52

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