

# 60 Questions

## to Ask Your Lubricant Supplier

How are lubricants handled and transported before you receive them? Evaluate your lubricant supplier or candidate suppliers with this key list of questions about contamination control and product integrity practices.

Lubricant suppliers serve two very different lubricant user types. Fundamentally, these two types of customers could be described as either automotive or industrial oriented users. Automotive users would include those business and individuals that make, buy or use combustion engine, transmission, and propulsion drive train products, and industrial users would include those businesses and individuals that make and maintain durable (tools, machines, capital intensive goods, etc.) and consumable products (newsprint, trash cans, light bulbs, electricity, etc.).

To date, fleet and automotive oriented users appear only slightly aware of the issue of lubricant contamination and the contaminant's impact on machine reliability and lubricant performance capability. The standardized (ILSAC and API) Quality Certification designations, which do not include any kind of contaminant level limit, are perceived to be strong enough measures of quality to the user market that alternative measures of quality are not recognized or promoted.

Industrial lubricant users do not have any similar standardized performance rating and qualification system, and have therefore have had to educate themselves well enough to discern the difference between real quality and persuasive marketing. Certainly, not all industrial lubricant users have learned to differentiate effectively, but many do recognize and expect higher quality and performance levels from lubricant suppliers.

In the final accounting, the lubricant consumer has to assume responsibility for assuring that the lubricant is delivered into the manufacturing or automotive application in a suitable, useable condition. This report will consider the role that the lubricant manufacturer's local warehouse (lubricant distributor) plays in assuring high cleanliness product quality levels at the point of delivery to the user site.

## **Lubricant Distributor Networks**

The local presence for broad-based petroleum companies like ExxonMobil, Shell, ChevronTexaco, and British Petroleum is the distributor network. The large multi-national recognizes the relative difficulty, perhaps impossibility, of manufacturing globally, and supplying locally without the benefit of a local presence to handle the individual customer transactions. Accordingly, there are well defined business requirements in place for the establishment of local warehouse and delivery entities for the lubricant manufacturer.

While there is a never ending ebb and flow of business defaults, consolidations and new starts, the current distributor networks are fairly well established and privately owned enterprises handling heating fuel, gasoline, diesel, a variety of lubricants and other petroleum products. Most have multiple company agreements in place to enable distribution of more than one line of products. Quite a few of these businesses are half-a-century old with multiple sites of operation.

The multi-national will likely have clearly defined requirements set out that the local licensee must meet to maintain a license to a particular brand, including demographic profiles, reasonable means to develop a thriving business, a physical plant and sufficient financial stability to sustain the business during lean periods.

## **Product Integrity**

The lubricant manufacturer's product integrity guideline would provide standardized expectations and limits for local warehousing and distribution of the manufacturer's products.

A healthy product integrity plan requirement will include considerations for:

- Product Chain of Custody Documentation
  - Receipt
  - Repackaging
  - Customer delivery

- Product Handling Methods and documentation
  - Practices for Off-loading from the transport
  - Practices for repackaging to smaller containers from the tank farm
  - Practices for transfer to a local delivery truck from the tank farm
  - Practices for transfer from the delivery truck to the customer tank farm
- Product Chemical Integrity documentation
- Tankage and Storage System Quality
- Repackaging Quality and Control
- Warehouse Condition
- Inventory Management and Control

The lubricant user would do well to devise a local warehouse inspection profile built around these basic parameters. There are a number of important details associated with each of the noted criteria. While criteria importance may shift from one industry to another, there are a good many criteria that could be standardized across all industries. In the following paragraphs the author will try to outline criteria that are believed to be universally important to lubricant consumers.

## **Product Chain of Custody Documentation**

The chain of custody documentation practice is intended to formalize the transfer of ownership of the material with a high degree of confidence over the type and quality of the material under transfer, regardless of the individuals involved in the process. The risk of careless errors may be limited with a rigorously defined, written and enforced verification practice in which transport/delivery driver and site/customer warehousemen must participate. Guidelines could include the following kinds of details.

## **Product Receipt**

1. Is there a clearly defined process the transport driver (whether a company owned or a private carrier) can use to verify which product is loaded into which compartment in the transport truck (typically a bulk transport with 4 separate compartments) at the point of pick-up (batch plant)?
2. Does the driver coordinate transport loading with the batch plant personnel?
3. Does the driver coordinate transport off-loading with the local warehouse personnel.
4. Does the driver verify lubricant type by compartment type with the warehouseman for each compartment as it is offloaded?
5. Does the distributor require driver and warehousemen acknowledgement of transport and warehouse safety checks during the offloading process?
6. Is there a 'practice' document for the offloading activity posted in a written SOP (Standard Operating Procedure)?
7. Is there a document (register) where the practices are acknowledged by the workmen with each repackage event?

## **Product Repackaging**

8. Is the repackaged material identified by source (tank or vessel name/number)?
9. Is the repackaged material date stamped?
10. Is there a batch number, or other manufacturing designation, noted with the packaged material?
11. Is the packaged material 'temperature adjusted' during repackaging to account for potential changes in package volume from temperature variations?
12. Is there a 'practice' document for the offloading activity posted in a written SOP (Standard Operating Procedure)?
13. Is there a document (register) where the practices are acknowledged by the workmen with each repackage event?

## **Product Delivery at the Customer Site**

14. Is there a clearly defined process the customer and delivery vehicle driver (whether company owned or a private carrier) can use to verify which product is loaded into which compartment of the delivery truck?
15. Does the driver coordinate transport off-loading with the customer?
16. If not, is there some mechanism in place for the driver to verify the contents of the customer vessel that the truck is offloading to?
17. Is there a document for the driver use to verify the specific compartment and product off-loading to a specific tank farm vessel?
18. Is there a 'practice' document for the offloading activity posted in a written SOP (Standard Operating Procedure)?
19. Is there a document (register) where the practices are acknowledged by the driver with each delivery event?

## **Product Handling Methods and Documentation**

The product handling documentation is intended to strictly define the process that the warehousemen may follow, and the tools the warehousemen may use, in the course of handling the lubricant. Properly devised handling practices can assure that the lubricant is not cross contaminated with other lubricants during routine product movement from the transport to the tank farm to the delivery truck or individual package containers. This is particularly important where multiple products are transported using common pumps and piping circuitry.

## **Practices for Off-loading from the Transport, Repackaging Transfers, and Delivery**

- 20. Is there a flushing procedure for each line used to transport more than one product?
- 21. Is there a flushing procedure for each pump used for more than one product?
- 22. Does the flushing procedure account for degrees of lubricant incompatibility with variations in the prescribed flushing volume?
- 23. Is the required flush volume based on quantitative or qualitative methods?
- 24. Is the flushing flush volume measured or estimated?
- 25. Is the flushing fluid volume tracked and verified periodically?

## **For Activities Associated with Repackaging and Delivery**

- 26. Are the packages filled in a clean and dry environment?
- 27. Are the re-useable packages (totes, truck compartments) dedicated to single products, or thoroughly cleaned prior to product changeover?
- 28. Are the pipes and nozzles used for repackaging exercise maintained in a clean, dry area, under seal when not in use?

29. Are meters used for volumetric or weight measurement routinely (annually) recalibrated? Are the seals denoting calibration intact?

## **Product Chemical Integrity Documentation**

Chemical integrity documentation is intended to provide assurance to any party that may inquire that the product is handled in such a way as to prevent any lubricant cross contamination with fuel, coolants, antifreeze or other industrial products or chemicals. Most distributor sites have dedicated system for lubricants, although the system piping and pumps may be used to transport multiple incompatible products.

30. Product sampling is conducted for all compartments of all transport deliveries.
31. Product sampling is conducted at the beginning of all product packaging runs
32. Product sampling is conducted at the beginning of new product runs for each delivery, and following each delivery system flush during deliveries.
33. Product samples are labeled with product name, date and batch number for shipping order number.
34. Product sample are retained for at least 6 months in a clean, dry environment, and are easily locatable.
35. Product samples are periodically sent to an approved laboratory for chemical trace analysis and integrity review.

## **Tankage and Storage System Quality**

Tank are piping systems are rarely constructed from stainless steel, and should not be constructed using galvanized steel. Consequently, there is some risk that metal surfaces will become severely rusted in due time from exposure to atmospheric moisture and from moisture present in the lubricant. Additionally, most tanks are ventilated through a loose mesh screen rather than through a quality depth media breather



element. If the external condition of the tanks is obviously distressed, it can be an indication of the general attitude that site management has for product integrity.

36. Is the tank farm clean, orderly and in good apparent physical shape?

37. Are the tanks and lines free of obvious rust and corrosion?

38. Are the pipes constructed with anything other than galvanized?

39. Are the tanks properly ventilated?

40. Is there some means to drain moisture off of the bottom of tanks?

41. Are the tank inlets capable of being isolated and locked to prevent sabotage?

## **Repackaging Quality and Control**

Most local warehouses are licensed to 're-package' main line lubricants for resell in less-than-bulk quantities. The process involves pumping the lubricant from the holding tank into 5, 15, 25 and/or 55 gallon containers, and then sealing the containers for future shipment.

There are two key concerns that the lubricant manufacturer will express to the distributors: Package Integrity (color, label placement, nominal cleanliness), and Product Integrity (which is an extension of the preceding theme).

Package integrity pertains to cosmetic appearance of the product. While cosmetic appearance does not directly impact the utility of the contents of the package, it does influence user attitudes toward the brand.

43. Are the containers and labels in good physical condition?

44. Is each container label dated, marked with a batch number/order number and placed on the container for easy observation?

45. Is the inventory turned frequently enough to prevent 'aging' of any package containers beyond 6 months?

Product integrity again pertains to the chemical and environmental condition of the product. The biggest contamination threat is from lubricant cross contamination, and is most prevalent for very short repackaging runs and for the first few containers in each package run. In addition to the issues defined earlier for transfer of lubricant into and out of the tank farm, there is a need to consider container cleanliness and filling practices.

46. Is there any type of quantifiable container cleanliness standard in use by the distributor?

47. Is each container carefully internally inspected according to a stated standard prior to filling?

48. Is each drum container DOT pressure tested and certified prior to filling?

49. Are the containers filled in a dry and clean (dust and dirt free) environment?

50. Are the containers with open bodies (kegs and pails), and matching container lids stored in isolation (i.e.: stacked upside down in plastic bags) prior to filling?

## **Warehouse Condition**

Similar to the issue of tank farm condition, warehouse condition is an external indication of the relative level of interest and care that the business owner has for the product and the process. Warehouse condition may directly affect the product integrity when containers are left open either before or after product has been placed inside.

51. Is the warehouse clean?

52. Is the warehouse area dry?

53. Is the warehouse storage space capable of being isolated and locked for product security?

54. Are the products stacked such that there is little risk of accident due to containers falling?

## **Inventory Management and Control**

Lubricants have a shelf life. Shelf life differs based on the type and additive concentration of the lubricant. There is no single standard or measure by which lubricant shelf life can be defined. An arbitrary target of 1 year is a reasonable shelf life limit.

55. Is there a predetermined target spoilage date?

56. Are the packaged products clearly dated?

57. Is the inventory turned frequently enough to prevent product spoilage based on the dates shown on the containers in storage?

58. Is there any product in bulk tank storage where the most recent delivery date is more than 6 months past?

59. Is there a method for tracking dated inventory?

60. Is there a process in place to either condition or discard dated inventory?

## **Audit Tool Characteristics**

A survey form should be devised around questions of the nature of those suggested above. Each question should have the following characteristics:

- The question should be specific to a target issue.
- The question should have only one variable for consideration
- The question should be answerable with a yes or no (to avoid tangling opinions into the response).

For the sake of simplicity, simple averages can be derived from giving a no answer a 0 and a yes answer a 1, and averaging all scores together to provide an overall score. The site should consider establishing minimum score expectation for the site survey as part of determining whether to conduct business with a specific distributor.

## CONCLUSION

Following these guidelines, it will be possible for any interested party to compile and conduct a simple, objective and effective site survey of a local lubricant supplier site. The survey results could be most useful when shared with potential suppliers prior to review as part of a competitive bid process.