Life Extension Table – Moisture Content

New Moisture Level (ppm)

Current Moisture Level (ppm)	10,000		5,000		2,500		1,000		500		250		100		50	
	Rolling Element	Journal	Rolling Element	Journal	Rolling Element	Journal	Rolling Element	Journal	Rolling Element	Journal	Rolling Element	Journal	Rolling Element	Journal	Rolling Element	Journal
50,000	2.3	1.6	3.3	1.9	4.6	2.3	7.8	2.9	11.2	3.5	16.2	4.3	26.2	5.5	37.8	6.7
25,000	1.6	1.3	2.3	1.6	3.3	1.9	5.4	2.4	7.8	2.9	11.2	3.5	18.2	4.6	26.2	5.5
10,000			1.4	1.2	2.0	1.5	3.3	1.9	4.8	2.3	6.9	2.8	11.2	3.5	16.2	4.3
5,000					1.4	1.2	2.3	1.6	3.3	1.9	4.8	2.3	7.8	2.9	11.2	3.5
2,500							1.6	1.3	2.3	1.6	3.3	1.9	5.4	2.4	7.8	2.9
1,000*									1.4	1.2	2.0*	1.5*	3.3	1.9	4.8	2.3
500											1.4	1.2	2.3	1.6	3.3	1.9
250													1.5	1.3	2.3	1.6
100															1.4	1.2

**Source–SKF Bearings, Oklahoma State University and Noria Corporation.*

Example:

- If a circulating oil system contains oil with 1000 ppm (equals 0.1%) moisture content, first locate the box on the "Y" axis for 1000 ppm (asterisked).
- Then move horizontally to the new target mositure level, say 250 ppm (0.025%) for this example.
- The life extension factor for the new, target moisture level would be a factor of 2.0 for Rolling Element bearings, and a life extension factor of 1.5 for journal bearings.

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Hydraulic Systems

Current Machine Cleanliness	New Cleanliness Level										
	22/20/17	21/19/16	20/18/15	19/17/14	18/16/13	17/15/12	16/14/11	15/13/10	14/12/9	13/11/8	12/10/07
28/26/23	5	7	9	>10	>10	>10	>10	>10	>10	>10	>10
27/25/22	4	5	7	9	>10	>10	>10	>10	>10	>10	>10
26/24/21	3	4	6	7	9	>10	>10	>10	>10	>10	>10
25/23/20	2	3	4	5	7	9	>10	>10	>10	>10	>10
24/22/19	1.6	2	3	4	5	7	8	>10	>10	>10	>10
23/21/18	1.3	1.5	2	3	4	5	7	9	>10	>10	>10
22/20/17		1.3	1.6	2	3	4	5	7	9	>10	>10
21/19/16			1.3	1.6	**2**	3	4	5	7	9	>10
20/18/15*				1.3	1.6	2	3	4	5	7	>10
19/17/14					1.3	1.6	2	3	4	6	8
18/16/13						1.3	1.6	2	3	4	6
17/15/12							1.3	1.6	2	3	4
16/14/11								1.3	1.6	2	3
15/13/10									1.4	1.8	2.5

**Source–Noria Corporation.*

Example:

- Locate the current oil system ISO Cleanliness code on the "Y" Axis, say 20/18/15 for this example (asterisked). Move horizontally to the new target cleanliness level, which we will say is 17/15/12 for this example.
- For our example, the life extension factor for Hydraulic System Components = **2.0**. If we can obtain and maintain the target cleanliness level of 17/15/12, we can expect the system components to last 2 times longer than currently being experienced with the 20/18/15 ISO Cleanliness level.

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Journal Bearings and Turbo Machinery

Current Machine Cleanliness	New Cleanliness Level										
	22/20/17	21/19/16	20/18/15	19/17/14	18/16/13	17/15/12	16/14/11	15/13/10	14/12/9	13/11/8	12/10/07
28/26/23	4	4.5	6	6.5	7.5	8.5	10	>10	>10	>10	>10
27/25/22	3	3.5	4.5	5	6.5	8	9	10	>10	>10	>10
26/24/21	2.5	3	4	5	6.5	7.5	8.5	9.5	>10	>10	>10
25/23/20	1.7	2.3	3	3.7	5	6	7	8	9.5	>10	>10
24/22/19	1.4	1.8	2.3	3	3.5	4.5	5.5	7	8	10	>10
23/21/18	1.2	1.5	1.8	2.2	3	3.5	4.5	5	7	9	10
22/20/17		1.2	1.5	1.8	2.3	3	3.5	5	5	8	10
21/19/16			1.2	1.5	1.8	2.2	3	3.5	5	7	9
20/18/15*				1.2	1.5	**1.8**	2.3	3	3.5	5.5	8
19/17/14					1.2	1.5	1.8	2.3	3	4	6
18/16/13						1.2	1.5	1.8	2.3	3.7	4.5
17/15/12							1.2	1.5	1.8	2.3	3
16/14/11								1.3	1.6	1.9	2.3
15/13/10									1.2	1.6	2

**Source–Noria Corporation.*

Example:

- Locate the current oil system ISO Cleanliness code on the "Y" Axis, say 20/18/15 for this example (asterisked). Move horizontally to the new target cleanliness level, which we will say is 17/15/12 for this example.
- For our example, the life extension factor for Journal Bearings and Turbo Machinery = **1.8**. If we can obtain and maintain the target cleanliness level of 17/15/12, we can expect the system components to last 1.8 times longer than currently being experienced with the 20/18/15 ISO Cleanliness level.

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Rolling Element Bearings

Current Machine Cleanliness	New Cleanliness Level										
	22/20/17	21/19/16	20/18/15	19/17/14	18/16/13	17/15/12	16/14/11	15/13/10	14/12/9	13/11/8	12/10/07
28/26/23	3	3.5	4	5	6	7.5	9	>10	>10	>10	>10
27/25/22	2.5	3	3.5	4	5	6	7	9	>10	>10	>10
26/24/21	2	2.5	3	4	5	6	7	8	10	>10	>10
25/23/20	1.5	2	2.5	3	3.5	4	5	6	8	9	>10
24/22/19	1.3	1.6	2	2.5	3	3.5	4	5	6	7	>10
23/21/18	1.2	1.5	1.7	2	2.5	3	3.5	4	5	7	10
22/20/17		1.2	1.5	1.7	2	2.5	3	4	5	7	9
21/19/16			1.2	1.5	**1.7**	2	2.5	3	4	6	8
20/18/15*				1.2	1.5	1.7	2	2.5	3	4.5	6
19/17/14					1.2	1.5	1.7	2	2.5	3	5
18/16/13						1.2	1.5	1.7	2	3.5	4
17/15/12							1.2	1.5	1.7	2	2.5
16/14/11								1.3	1.6	1.8	2
15/13/10									1.2	1.5	1.8

**Source–Noria Corporation.*

Example:

- Locate the current oil system ISO Cleanliness code on the "Y" Axis, say 20/18/15 for this example (asterisked). Move horizontally to the new target cleanliness level, which we will say is 17/15/12 for this example.
- For our example, the life extension factor for Rolling Element Bearings = **1.7**. If we can obtain and maintain the target cleanliness level of 17/15/12, we can expect the system components to last 1.7 times longer than currently being experienced with the 20/18/15 ISO Cleanliness level.

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Gear Boxes and Other Systems

Current Machine Cleanliness	New Cleanliness Level										
	22/20/17	21/19/16	20/18/15	19/17/14	18/16/13	17/15/12	16/14/11	15/13/10	14/12/9	13/11/8	12/10/07
28/26/23	2.5	3	3.5	4	5	6.5	7	9	10	>10	>10
27/25/22	2	2.5	3	3.5	4	5	6	7.5	9	>10	>10
26/24/21	1.5	2	2.5	3	4	5	6	7	8	10	>10
25/23/20	1.3	1.5	2	2.5	3	3.5	4	5	6.5	8.5	10
24/22/19	1.1	1.3	1.7	2	2.5	3	3.5	4	5	5.5	8.5
23/21/18	1.1	1.3	1.4	1.6	2	2.5	3	3.5	4	5.5	8
22/20/17		1.05	1.3	1.4	1.7	2	2.5	3	4	5.5	7
21/19/16			1.1	1.3	1.5	1.7	2	2.5	3.5	4.5	6
20/18/15*				1.1	1.3	**1.5**	1.7	2	2.5	3.7	5
19/17/14					1.1	1.3	1.5	1.7	2	2.5	3.5
18/16/13						1.1	1.3	1.5	1.8	3	3.5
17/15/12							1.1	1.4	1.5	1.8	2.2
16/14/11								1.2	1.4	1.5	1.8
15/13/10									1.1	1.3	1.6

** Source – Noria Corporation.*

Example:

- Locate the current oil system ISO Cleanliness code on the "Y" Axis, say 20/18/15 for this example (asterisked). Move horizontally to the new target cleanliness level, which we will say is 17/15/12 for this example.
- For our example, the life extension factor for Gear Boxes and Other Systems = **1.5**. If we can obtain and maintain the target cleanliness level of 17/15/12, we can expect the system components to last 1.5 times longer than currently being experienced with the 20/18/15 ISO Cleanliness level.