

**Petroleum Technologies Oil Analysis Program**

**ISO**  
**International Standards Organization**  
**Particle Count Classification**

<b><u>ISO Class</u></b>	<b><u>Number of Particles per 100 ML</u></b>
1	0 – 2
2	2 – 4
3	4 – 8
4	8 – 16
5	16 – 32
6	32 – 64
7	64 – 130
8	130 – 250
9	250 – 500
10	500 – 1000
11	1000 – 2000
12	2000 – 4000
13	4000 – 8000
14	8000 – 16,000
15	16,00 – 32,000
16	32,000 – 64,000
17	64,000 -- 130,000
18	130,000 – 250,000
19	250,000 – 500,000
20	500,000 – 1,000,000
21	1,000,000 – 2,000,000
22	2,000,000 – 4,000,000
23	4,000,000 – 8,000,000
24	8,000,000 – 16,000,000
25	16,000,000 – 32,000,000
26	32,000,000 – 64,000,000

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### ISO International Standards Organization

#### Typical Hydraulic Components Requirements

- ISO 15/14/11 - Servo Control Valves
- ISO 17/16/13 - Vane and Piston Pumps
- ISO 17/16/13 - Directional & Pressure Control Valves
- ISO 18/17/14 - Gear Pumps
- ISO 19/18/15 - Flow Control Valves & Cylinders

#### Suggested Contamination Levels for Various Hydraulic Systems

<u>Target Class</u>	<u>Sensitivity</u>	<u>System</u>
14/13/9	Super Critical	Silt sensitive control system. Laboratory or Aerospace.
16/15/11	Critical	High performance servo and high pressure systems.
17/16/13	Very Important	High quality systems. General machine requirements.
19/18/14	Important	General machinery & mobile systems. Medium pressure & medium capacity.
20/19/15	Average	Low pressure industrial systems.
22/21/17	Main Protection	Low pressure with large clearances.