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Prefilling Oil Filter Instructions

The Cummins manual states:

Fill the oil filter with clean lubricating oil. The lack of lubrication during the delay until the filter is pumped full of oil is harmful to the engine

IF you do pre-fill the oil filter, there is a right and wrong way to do it.

The small outer holes are the **INLETS**, the large center hole the **OUTLET**.

Pour all the oil in the small holes. Any oil that gets in the (much easier to hit) large center hole will go to your engine UNFILTERED. Do not assume there are no particulates in new oil (ask any Petroleum Products Engineer).

Many go to a hardware store and find a short pipe that threads into the center hole while pre-filling to keep oil from the OUTLET hole.

BTW, Caterpillar recommends *AGAINST* pre-filling filters for just this reason – fear of particulates in oil passing directly into bearing areas.

by Brett Wolfe

Is new oil really Dirty?

The following values are for oil taken from a newly opened container and submitted to an analysis lab.

Prior to 1999, ISO Codes were expressed as two numbers, such as “14/11” (as seen in the below chart), these represent the **ISO code** for found particles greater than 5 microns and greater than 15 microns (see code chart below). This chart also includes larger particle counts, those for >75 microns >50 microns >25 microns as actual counts (not as an ISO code)

Oil	ISO	Clean	Particles per Milliliter			Notes
			>75um	>50um	>25um	
Cenex	15W40	23/17	2	9	115	(1)
Synlube TMS	10W30	20/15	0	0	9	
Chevron	10W	18/13	0	1	16	
Chevron	15W40	19/15	2	9	35	
“Unispec”		20/17	0	4	177	
Farmland	15W40	20/15	12	24	72	(2)
John Deere	10W30	19/13	0	2	9	
Mobil	10W30	19/15	1	3	41	(3)
Mobil Delvac	15W40	22/16	1	4	50	
Rotella	15W40	19/14	4	8	28	(4)
Royal Purple	5W30	18/14	0	8	28	
Schaeffer	15W40	18/13	2	3	12	
Mobil Delvac 1		20/14	0	1	19	
Cat Deo	5W40	18/12	0	1	5	(5)
M1	0W40	21/16	1	2	54	(6)

M1 Truck SUV		21/15	1	1	16	
Synergen	15W50	18/13	5	14	25	
Mystic	5W30	17/13	1	2	7	
Amsoil	15W40	19/16	1	6	64	
Pennzoil	15W40	17/14	1	13	93	(7)

- (1) Contained metal flakes "not uncommon in new oil"
- (2) Contained 8 particles/ml over 100um (0.004"). Caterpillar have an ISO 16/13 spec for new fill (and that most bottled oils don't make it).
- (3) Dust/debris seen in microscope, recommend filter before use.
- (4) 2 particles per ml greater than 100um (0.004")
- (5) One would assume that being Cat, it was pretty well filtered to suit their case.
- (6) Noted small particles that appeared to be organic, possibly additives
- (7) Noted that this oil has an additive that shows false Antifreeze.

ISO 4406:1999 Code Chart

ISO 4406:1999 Code Chart		
Range Code	Particles per Milliliter	
	More than	Up to/Including
23	40000	80000
22	20000	40000
21	10000	20000
20	5000	10000
19	2500	5000
18	1300	2500
17	640	1300
16	320	640
15	160	320
14	80	160
13	40	80
12	20	40
11	10	20
10	5	10

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