



Check out the oil from a 1936 Cat bulldozer!
To learn where the elements are coming from,
[click here](#) and scroll down.

UNIT	MAKE/MODEL: Cat D4	OIL TYPE & GRADE: Diesel Engine Oil
	FUEL TYPE: Diesel	OIL USE INTERVAL: Hours
	ADDITIONAL INFO: 1936 Cat RD-4 Bulldozer/Crawler	

COMMENTS Holy cow, that YouTube video was wild! The engine in this rescued Cat doesn't look great - as expected for oil that's been sitting the better part of 50 years. We put up averages for Cat's D4 engine though that's not likely an exact match for this engine type. This is a lot of metal in comparison, but what would be really interesting is the next sample - does wear improve? Aluminum (pistons) isn't bad, but iron (cylinders/shafts), copper (brass/bronze parts), lead (bearings) are high. Coolant is present (sodium/potassium) and 3.5% fuel. The TBN is low at 1.6.

ELEMENTS IN PARTS PER MILLION	MI/HR on Oil		UNIT / LOCATION AVERAGES		UNIVERSAL AVERAGES
	MI/HR on Unit	8,100			
	Sample Date	4/10/2022			
	Make Up Oil Added				
ALUMINUM	9				5
CHROMIUM	1				2
IRON	729				34
COPPER	254				13
LEAD	214				62
TIN	4				1
MOLYBDENUM	1				29
NICKEL	3				0
MANGANESE	15				0
SILVER	0				0
TITANIUM	0				1
POTASSIUM	19				2
BORON	7				72
SILICON	11				12
SODIUM	25				11
CALCIUM	2509				2063
MAGNESIUM	13				326
PHOSPHORUS	447				1030
ZINC	384				1188
BARIUM	496				1

PROPERTIES	Values Should Be*				
	SUS Viscosity @ 210°F	63.6			
	cSt Viscosity @ 100°C	11.22			
	Flashpoint in °F	380	>415		
	Fuel %	3.5	<2.0		
	Antifreeze %	?	0.0		
	Water %	POS	0.0		
	Insolubles %	0.2	<0.6		
	TBN	1.6	>1.0		
	TAN				
	ISO Code				

We left the comments on this sample since they're pretty self-explanatory. The owner told us, "This oil came from a long-neglected 1936 Caterpillar RD-4 bulldozer/crawler. This machine was rescued from its 40-50 year resting place in a hedgerow in South Dakota and is undergoing a complete restoration. To the best of our knowledge, the machine was used as an agricultural crawler from 1937-1970 when it was parked, and has been sitting ever since. The owner and I thought it would be interesting to get samples on the lubricants in the tractor at the time of rescue." Note that the additive package is quite different from what you find in engine oil nowadays. This video shows the pan coming off and gives us a good look inside the engine. The whole thing is interesting, but to see the pan come off forward to about 12 min: <https://youtu.be/R-bf0W6M5RU>