

NAME: **ENGINE OIL CHARGES FOR STATIONARY GAS TEDOM ENGINES**

1. DETERMINATION OF THE SCOPE OF VALIDITY

This Regulation covers motor oil charges specified for stationary gas TEDOM engines.

2. APPROVED ENGINE OILS

The following symbols are applied for individual gases: G - natural gas, S - sewage gas, L - landfill gas, B - biogas, P - propane-butane, W - wood gas, H - hydrogen gas

Oil designation	Viscosity class	Approved fuel	Note
AGIP AUTOL GASMOTORENÖL BGJ 40	40	L,B,S	
AGIP CLADIUM 120	40	L,B,S	
FUCHS TITAN GANYMET PLUS LA	40	G, P	
MADIT GAS	15W - 40	G, P	
MOL DYNAMIC GAS SUPER	15W - 40	G, P	
MOBIL PEGASUS 1	15W - 40	G, P	Synthetic oil
MOBIL PEGASUS 605	40	G, P	
MOBIL PEGASUS 610	40	L,B,S	
MOBIL PEGASUS 710	40	G, P	
MOBIL PEGASUS 705	40	G, P	
MOBIL PEGASUS 805	40	G,P	
MOBIL MOBILGARD 450	40	L, B, S	
OMV MULTIGAS	15W - 40	G, P	
OMV GAS HD 40	40	G, P	
PARAMO MOGULGAS	15W - 40	G,P	
PARAMO MOGULGAS B	15W - 40	G,S,L,B,P	
STRUB JMS 320 PLUS	40	B	
TEXACO GEOTEX HD 40	40	G, P	Consult use of the catalyst with the manufacturer

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TEXACO GEOTEX PX 40	40	G, P	
Q8 MAHLER T	15W - 40	G, P	
Q8 MAHLER HA	40	L,B,S,G, P	

3. ENGINE OIL REPLACEMENT

Oil must always be replaced in the following cases:

- After 100 hours in case of the first charge (from the manufacturing plant)
- Once a year as a minimum
- In case of coolant leak into the oil
- If the limit values shown in the item 4 are exceeded; periodicity is determined by sampling in conformity with the item 3.1 below
- If the values pursuant to table 3.2 are reached, provided that sampling is not applied for determination of the periodicity of oil.

3.1 DETERMINATION OF PERIODICITY FOR ENGINE OIL REPLACEMENT BY SAMPLING

Periodicity of oil replacement, when the oil does not exceed the limit values shown in the item 4 below, is determined by sampling. The scope of oil analysis must correspond to the oil features preset by the item 4; the analysis must be carried out by the adequately equipped laboratory. Results of analyses must be archived. Sampling is commenced after replacement of the first oil charge (filled by the manufacturing plant). Oil samples are taken every 150 hours of operation – in case of the natural gas and every 75 hours – for all other gases. The periodicity is determined upon reach of the limits preset in the item 4 below. For your illustration the procedure is shown in Fig. 1 on the abrasion metals.

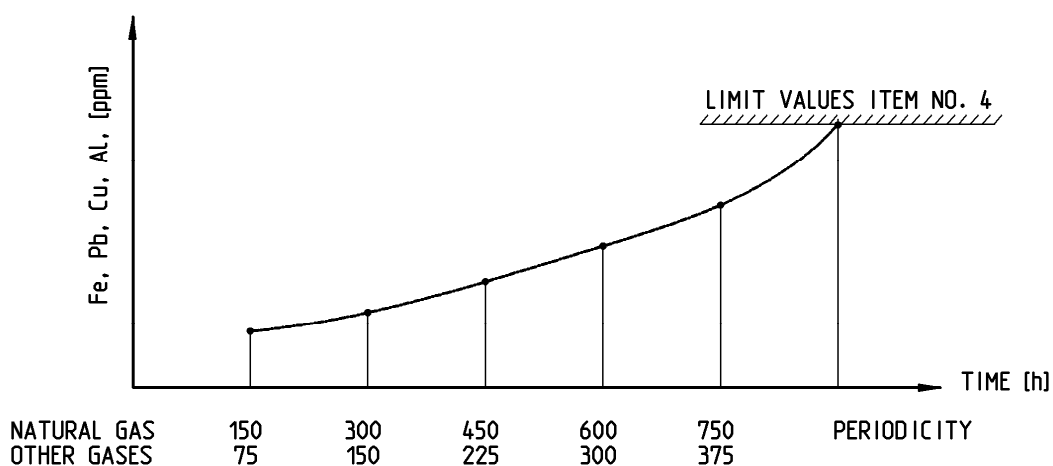


Fig. 1

To confirm periodicity, the process of sampling must be carried out twice more as a minimum. Periodicity of sampling remains preserved. If the time period between sample taking and evaluation during the first sampling procedure does not provide replacement of the oil filling in due time, then the first oil replacement (except the first charge by the manufacturing plant) must be carried out pursuant to item 3.2. For financial reasons the following exception for the periodicity of sampling may be applied. The beginning of the testing could be started at 500 hours for natural gas. The second and third sampling (for all gases) can always be commenced one interval before the end of the preceding sampling procedure.

In case of change: of kind of oil
Lubricating charge size
Fuel properties/features
Engine power
Method of engine load
Ambient conditions

periodicity for oil replacement must be confirmed by a new sampling procedure.

3.2 PERIODICITY OF ENGINE OIL REPLACEMENT WITHOUT SAMPLING

- Periodicity of engine oil replacement for natural gas without sampling is according to table:

Operation – output/power	Periodicity (hours)		
	Power up to 170 kW		Power above 170 kW
	Charge of 30.5	Charge of 56 l	Charge of 56 l
Continuous operation – predominant output 30-75%	800	1500	1200
Continuous operation – predominant output 75 - 100 %	600	1200	1000
Discontinuous operation – predominant output 30 - 75 %			
Discontinuous or another not specified operation - output 75-100 %	500	1000	800

- Periodicity of engine replacement for landfill gas without sampling is 400 hours.
- Periodicity of engine replacement for others gases without sampling is 225 hours.

4. LIMIT ENGINE OIL VALUES

Cinematic viscosity (100°C)	min. 12, max. 18 [mm ² /s]	ČSN EN ISO 3104, (ČSN 65 6216)
TBN	>50% of fresh oil, min. >2 [mg KOH/g]	ISO 3771, ČSN 65 6069
TAN	≤ of current TBN	ASTM 664, ČSN 65 6214
pH	min. 4.5	
Oxidation at 5.8 µm	20 A/cm	DIN 51 451
Nitration at 6.1 µm	20 A/cm	DIN 51 451
Al	max. 10 ppm	DIN 51 391 ASTM D5185
Fe	max. 60 ppm	
Pb	max. 20 ppm	
Cu	max. 23 ppm	
Si	max. 15 ppm	
Glycol	max. 0.02%	DIN 51375
Water	max. 0.2%	DIN 51 777, ČSN EN ISO 9029 (ČSN 65 6062)

5. CHARACTERISTIC FEATURES OF APPROVED OILS

Oil	Viscosity SAE	Sulphate ash [weight %]	TBN [mg KOH/g]	Viscosity [mm ² /s]	
				40°C	100°C
AGIP AUTOL GASMOTORENÖL BGJ 40	40	0,9	9,5	155	15
AGIP CLADIUM 120	40	1,5	12	160	15,7
FUCHS TITAN GANYMET PLUS LA	40	0,49	5,5	141,5	14,9
MADIT GAS	15W-40	0,48	5,3	98,8	14,7
MOL DYNAMIC GAS SUPER	15W-40	0,84	8,3	102,9	14,1
MOBIL PEGASUS 1	15W-40	0,51	6,5	93,8	13,0
MOBIL PEGASUS 805	40	0,54	6,2	130	13,5
MOBIL PEGASUS 710	40	0,94	6,5	121	13,2
MOBIL PEGASUS 705	40	0,52	5,6	126,2	13,2
MOBIL PEGASUS 610	40	0,98	10,8	131	13,3
MOBIL PEGASUS 605	40	0,5	7,1	126	13,3
MOBIL MOBILGARD 450	40	1,5	13,5	140	14,2
OMV MULTIGAS	15W-40	1,05	9,1	105	14,3
OMV GAS HD 40	40	0,9	9,5	154	14,8
PARAMO MOGULGAS	15W-40	0,5	5,0	107,8	14,9
PARAMO MOGULGAS B	15W-40	1,02	9,5	107,8	14,9
STRUB JMS 320 PLUS	40	0,9	8,8	122	13,4
TEXACO GEOTEX HD 40	40	0,75	7,0	136	13,5
TEXACO GEOTEX PX 40	40	0,5	5,4	88	13,2
Q8 MAHLER T	15W-40	0,9	6,9	102,4	13,9
Q8 MAHLER HA	40	0,9	7,9	141,2	14,1

6. STOICHIOMETRIC ENGINES OILS

Oils with sulphate ash less than 0,55 (weight %) are required for stoichiometric engines.

7. OIL CLEANER CHANGE

Replacement of the approved full-flow oil cleaner or cleaner element is carried out always during oil change.

8. APPROVED OIL CLEANERS AND CLEANER ELEMENTS

Element - cleaner
Cleaner element MANN FILTR JIPAP O 11 OTO
Cleaner element MANN FILTR JIPAP H 1173/1
Cleaner element FILTRON OM 501
Cleaner TEDOM 7085 501
Cleaner TEDOM 7085 502
Cleaner FLEETGUARD LF 3658
Cleaner FLEETGUARD LF 4112
Cleaner MANN HUMMEL W 11 102
Cleaner BALDWIN B218

Concrete type of cleaner or cleaner element for every engine is mentioned inside of catalogue of spare parts and inside of service instructions.

9. CENTRIFUGAL CLEANER CLEANING

Cleaning of the centrifugal oil cleaner is carried out always during oil change.