

Hymat Services

AUTHORISED DISTRIBUTOR OF BHARAT PETROLEUM CORPN LTD. BPCL)
F - 9, 'KIRIT' Evershine Nagar Malad (W), Bombay – 400064 . INDIA.
Telefax - +91-22-28814802 / Mobile - +919324414802
E mail : hymatservices@yahoo.co.in

How to read and NAS Standard

As per NAS Standard

Take 100 ml of Oil and count all the particles present in it.

Divide them in to **5 Groups**

1. 5 to 15 Micron
2. 15 to 25 Micron
3. 25 to 50 Micron
4. 50 to 100 Micron
5. >100 Micron.

NAS has fixed **14 Class / Levels** – from **NAS – 00** to **NAS – 12**

For each Class / Level NAS has fixed **Maximum Permissible Number of particles** for each of the above groups as per following Table.

STANDARD		Number of Particles per 100 ML of Oil.				
NAS 1638	ISO 4406	MICRON RANGE				
Cleanliness Level		5 to 15	15 to 25	25 to 50	50 to 100	>100
oo	8 / 5	125	22	4	1	-
o	9 / 6	250	44	8	2	-
1	10 / 7	500	88	16	3	1
2	11 / 8	1000	178	32	6	1
3	12 / 9	2000	356	63	11	2
4	13 / 10	4000	712	126	22	4
5	14 / 11	8000	1425	253	45	8
6	15 / 12	16000	2800	506	90	16
7	16 / 13	32000	5700	1012	180	32
8	17 / 14	64000	11400	2000	360	64
9	18 / 15	128000	22800	4100	720	128
10	19 / 16	256000	45600	8100	1440	256
11	20 / 17	512000	91200	16200	2800	512
12	21 / 18	1024000	182000	32400	5800	1024

Hymat Services

AUTHORISED DISTRIBUTOR OF BHARAT PETROLEUM CORPN LTD. BPCL)
F - 9, 'KIRIT' Evershine Nagar Malad (W), Bombay – 400064 . INDIA.
Telefax - +91-22-28814802 / Mobile - +919324414802
E mail : hymatservices@yahoo.co.in

Oil is said to be clean of particular NAS level only if maximum number of particles of each group is of that level. Even if 1 particle is more than the maximum permissible level in any of the groups, it will not be said of that NAS class cleanliness Level.

Example – NAS -9

For Oil to be clean of NAS – 9 Level, maximum number of particles in each group has to be within NAS – 9 Level. Now refer the above chart.

For NAS – 9 following are maximum number of particles in each group are permissible.

1. 5 to 15 Micron size – 1,28,000
2. 15 to 25 Micron Size – 22,800
3. 25 to 50 Micron Size – 4100
4. 50 to 100 Micron Size – 720
5. >100 Micron Size - 128

If Oil contains concentration of particles of all groups within the **Maximum Permissible** range as mentioned above **except** >100 Micron range. Say they are 129 particles. Means only 1 particle of >100 Micron size is more than maximum permissible count, - here 128. Then also oil will not be of NAS – 9 Level clean but will be considered as NAS – 10 Level clean.

Thus Oil will be said to be clean of Particular NAS class/level only if concentration level of all particles in each range is within the maximum permissible limit.

NOTES

1. NAS has defined maximum up to NAS – 12 Level only. There is no NAS – 13 or NAS – 14 etc
2. Particle count above NAS – 12 level is considered to be of NAS – Class - 12 only..
3. If you observe closely NAS – 00 which is the ultimate clean oil has also permitted 1 particle of 50 to 100 Micron size.
4. NAS has **NOT** defined the **Micron size of filter to be used**. Since No filter element can remove 100 % particles of that particular micron size rating of the filter element.

Contact us for any clarifications.

For **Hymat Services**

V.S.Dave
(Proprietor)