

# Hydrocarbon Reserves Classification

@wikipedia

Hydrocarbon Reserves Classification provides the primary insight into the size, uncertainty and structure of the Hydrocarbon Reserves.

| Very Small  | Small          | Medium           | Big               | Giant               | Super-Giant     |
|-------------|----------------|------------------|-------------------|---------------------|-----------------|
| < 7 mln bbl | 7 ÷ 70 mln bbl | 70 ÷ 200 mln bbl | 200 ÷ 700 mln bbl | 700 ÷ 2,000 mln bbl | > 2,000 mln bbl |
| < 1 mln ton | 1 ÷ 10 mln ton | 10 ÷ 30 mln ton  | 30 ÷ 100 mln ton  | 100 ÷ 300 mln ton   | > 300 mln ton   |

|                                               |                                      |                                   |              |              |
|-----------------------------------------------|--------------------------------------|-----------------------------------|--------------|--------------|
| 3P = Proven P90 + Probable P50 + Possible P10 |                                      |                                   |              |              |
| 2P = Proven P90 + Probable P50                |                                      |                                   |              |              |
| 1P = Proven P90                               |                                      |                                   | Probable P50 | Possible P10 |
| Proven Developed Reserves(PD)                 |                                      | Proven Undeveloped Reserves (PUD) |              |              |
| Proven Developed Producing (PDP)              | Proven Developed Non-Producing (PDN) |                                   |              |              |

See also [Russian Hydrocarbon Reserves Uncertainty Categories](#).

|        | Gas    | Condensate | Light oil   | Medium Oil    | Heavy Oil   | Extra Heavy Oil (Bitumen) |
|--------|--------|------------|-------------|---------------|-------------|---------------------------|
| kg /m³ | < 702* | 702 ÷ 801  | 801 ÷ 870   | 870 ÷ 920     | 920 ÷ 1000  | > 1000                    |
| API    | > 70°  | 45° ÷ 70°  | 45° ÷ 31.1° | 22.3° ÷ 31.1° | 10° ÷ 22.3° | 4° ÷ 10°                  |

\* – with reference to air.

|                        | Dynamic fluid viscosity | Extra high perm | High perm        | Medium perm    | Low perm       | Tight (Shale) |
|------------------------|-------------------------|-----------------|------------------|----------------|----------------|---------------|
|                        | cP                      | > 1000 md       | 100 md ÷ 1000 md | 10 md ÷ 100 md | 0.1 md ÷ 10 md | < 0.1 md      |
| Low viscous oil        | < 1                     |                 |                  |                |                |               |
| Medium viscous oil     | 1 ÷ 10                  |                 |                  |                |                |               |
| High viscous oil       | 10 ÷ 100                |                 |                  |                |                |               |
| Extra high viscous oil | 100 ÷ 10,000            |                 |                  |                |                |               |
| Bitumen                | > 10,000                |                 |                  |                |                |               |

where box colours mean:

|                       |                         |                        |
|-----------------------|-------------------------|------------------------|
| Conventional Reserves | Unconventional Reserves | Unrecoverable Reserves |
|-----------------------|-------------------------|------------------------|

and the ranges of properties in the table are only tentatively define the category based on the industry statistics and conventions, which vary over history and locations.

| Undersaturated Oil Reservoir |                        | Saturated Oil Reservoir               |                   | Natural Gas Reservoir               |                   |                   |
|------------------------------|------------------------|---------------------------------------|-------------------|-------------------------------------|-------------------|-------------------|
| Black Oil Reservoir          | Volatile Oil Reservoir | Gas Cap Oil Reservoir                 | Oil Rim Reservoir | Retrograde Gas Condensate Reservoir | Wet Gas Reservoir | Dry Gas Reservoir |
|                              |                        | both underlying Natural Gas Reservoir |                   |                                     |                   |                   |

| Sweet crude   | Sour crude    |
|---------------|---------------|
| Sulfur < 0.5% | Sulfur > 0.5% |

| Very Fast Oil | Fast Oil   | Commensurable mobilitie of Oil and Water | Fast Water | Very Fast Water |
|---------------|------------|------------------------------------------|------------|-----------------|
| <0.2          | 0.2 ÷ 0.75 | 0.75 ÷ 1.25                              | 1.25 ÷ 5   | >5              |

| Very Poor | Poor       | Medium    | Good      | Very Good |
|-----------|------------|-----------|-----------|-----------|
| < 0.45    | 0.45 ÷ 1.0 | 1.0 ÷ 3.5 | 3.5 ÷ 8.0 | > 8.0     |

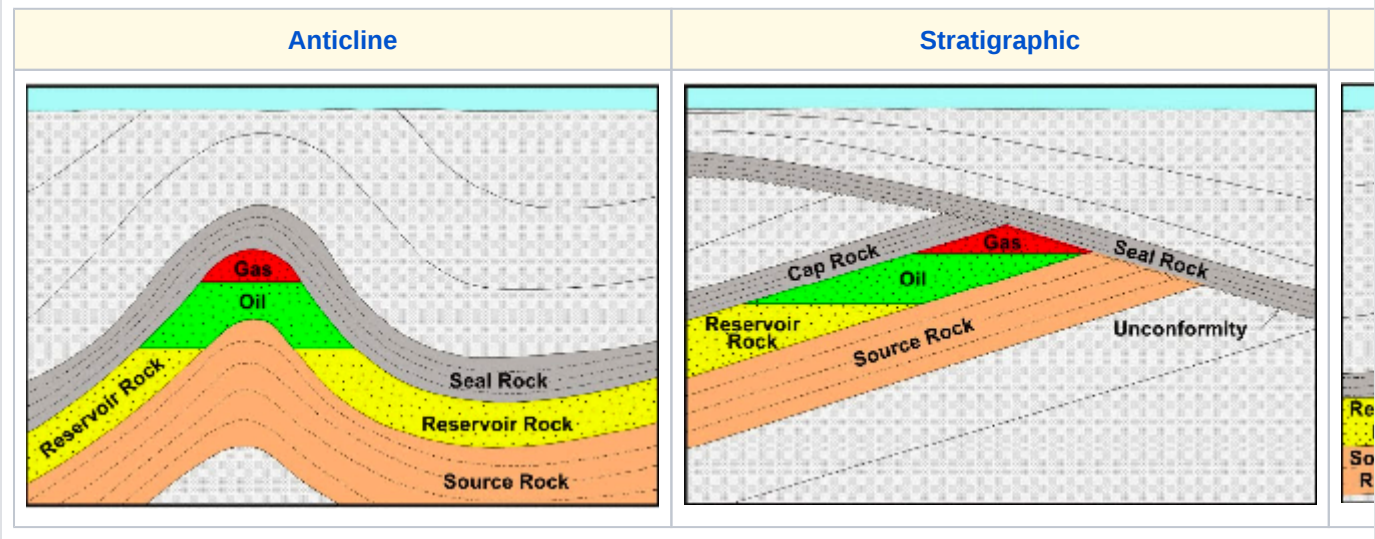
|                       | Strong <b>Aquifer</b> | Poor <b>Aquifer</b> | No <b>Aquifer</b> |
|-----------------------|-----------------------|---------------------|-------------------|
| Edge <b>Aquifer</b>   |                       |                     |                   |
| Bottom <b>Aquifer</b> |                       |                     |                   |

| Sedimentary  |                | Igneous | Metamorphic |
|--------------|----------------|---------|-------------|
| Clastic Rock | Carbonate Rock |         |             |

| Matrix | Fissured | Fractured |
|--------|----------|-----------|
|--------|----------|-----------|

| Uniform | Dissected |
|---------|-----------|
|---------|-----------|

| Faulted | Compartmentalized |
|---------|-------------------|
|---------|-------------------|



# See Also

[Petroleum Industry / Upstream / Subsurface E&P Disciplines / Petroleum Geology / Petroleum Reservoir / Hydrocarbon Reserves](#)

[\[ Russian Hydrocarbon Reserves Uncertainty Categories \]](#)
[\[ Hydrocarbon Reserves Uncertainty \]](#)

# References

<https://www.spe.org/industry/reserves.php>

[https://www.spe.org/industry/docs/GuidelinesEvaluationReservesResources\\_2001.pdf](https://www.spe.org/industry/docs/GuidelinesEvaluationReservesResources_2001.pdf)

<https://www.spe.org/industry/docs/PRMS-Guide-for-Non-Technical-Users-2007.pdf>