

Oil-Gas exchange

A specific case of [cross-phase fluid exchange](#)

In [BO](#) and [MBO PVT models](#) when [oil](#) and [gas phases](#) reach chemical equilibrium the total [mass](#) of [oil](#) and [gas](#) components spread between [oil](#) and [gas phases](#) according to ambient [pressure](#) p and [temperature](#) T .

Given a mixture of [oil](#) and [gas](#) sharing the same volume under [pressure](#) p and [temperature](#) T with

the total [mass](#) of [oil component](#) $m_O = m_{Oo}(p, T) + m_{Og}(p, T)$

the total [mass](#) of [gas component](#) $m_G = m_{Gg}(p, T) + m_{Go}(p, T)$

where

the mass share of [oil component](#) in [oil phase](#) $m_{Oo}(p, T)$

the mass share of [oil component](#) in [gas phase](#) $m_{Og}(p, T)$

the mass share of [gas component](#) in [oil phase](#) $m_{Go}(p, T)$

mass share of [gas component](#) in [gas phase](#) $m_{Gg}(p, T)$

are all functions of [pressure](#) p and [temperature](#) T .

The quantitative measure of cross-phase exchange is given by [Soliton GOR](#) (R_s) and [Vaporized Oil Ration](#) (R_v):