Clay is a common component in sedimentary rocks especially mudstone. According to earlier studies (Nakano, 1967; Hesse, R., 1975; Sintubin, 1994), the size of clay particles is generally smaller than 2m, whereas silt particles are larger than 2m. Clay mineral assemblage in Sumatra mudstone is mainly composed of illite, smectite, mica, and chlorite, etc. Mica and chlorite particles were observed both in the silt and clay particle size range. In Unit-I and II dominant clay mineral is illite.

|  |  |  |  |
| --- | --- | --- | --- |
|  | | **Particle Size** | |
| Clay | Silt |
| **Mineralogy** | Clay (e.g.,1Md illite) | Clay | *NA* |
| Mica (e.g., 2M1 illite) | Clay | Mica |

Supplementary data-1: Particle size and mineralogical description of clay.