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The properties of large bubbles rising in very viscous liquids in vertical columns

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1 **The properties of large bubbles rising in very viscous liquids in vertical**
2 **columns.**

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7 **Abstract**

8 Very viscous liquids (>100 Pa s) are found in form of heavy oils and polymers in industry as
9 well as in the natural environment (silicatic magma). Little is known of their behaviour as
10 gas bubbles up through them in vertical columns. Using advanced tomographic
11 instrumentation, the characteristics of these flows have been quantified. It was found that:
12 the gas mainly travels as very large bubbles which occupy a significant part of the column
13 cross-section and that very small bubbles (~ 100 μm) are created and trapped within the
14 liquid. There is a periodic rising and falling of the top surface of the gas/liquid column as the
15 large bubbles rise to the top and burst.

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25 **1. Introduction**

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