



PHOTO COURTESY OF PLANETARY SIMULANT DATABASE

Planetary Simulant Database

Free Resource for Regolith Simulant Information

Mineralogy

Reproduced from the TLS Data Sheet

Mineral	Modal Abundance
Plagioclase	55.4
Olivine	—
Pyroxene	23.5
Essenite	14.5
Glass	20

Bulk Chemistry

Reproduced from the TLS Data Sheet

Oxide	Wt. %
Al ₂ O ₃	13.8
BaO	—
CaO	11.9
Cr ₂ O ₃	0.3
FeO Total	—
K ₂ O	0.16
MgO	7.8
Na ₂ O	0.47
P ₂ O ₅	0.09
SiO ₂	—
SiO ₂	42.2

Thailand Lunar Simulant

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Simulant Name: TLS-01 Thailand Lunar Simulant
Availability: May Be Available
Fabrication: Basic
Developed By: SPACEZAB
Available From: SPACEZAB (contact@spacezab.com)

The Thailand Lunar Simulant (TLS) is a lunar surface environment simulant produced by the SPACEZAB company as a tool for researching and developing lunar technologies. An adlabs database describes how it was sourced from a basalt quarry in Chanthaburi province, and that the chemistry of this basalt is a suitable analog for lunar mare samples returned by Apollo. The basalt was then processed using a Los Angeles Abrasion Machine, and sieved to remove the <15 mm size fraction to use as the simulant.



A sample of Thailand's lunar simulant.



PHOTOS COURTESY OF SPACEZAB

Thailand enters planet database

Thailand's first lunar soil replica has made its way to the Planetary Simulant Database, the only comprehensive catalogue of past and present regolith colonies.

Maintained by the Colorado School of Mines, the digital archive keeps a record of planetary simulants from many countries, including the US, the UK, Europe, Canada, China and Korea. Replicas include those from the Moon, Mars, asteroids and comets. The catalogue added the Thailand Lunar Simulant, called TLS-01, along with China's to its website last month.

The database said the TLS-01 is made for developing lunar technology by Space Zab,

a local space tech start-up company. It was sourced from an abandoned basalt quarry beside the Khreethan dam in Chanthaburi. Its chemistry is comparable with lunar mare (a dark feature on the Moon's surface) samples collected from Apollo missions.

Published in Sciforum, the academic platform, a research paper said it is important to develop simulants to study and create tools in preparation for lunar colonisation due to the limited availability of genuine materials. Sample rocks were ground into gravel and powder and sorted into different sizes. Then they were fully dried to simulate the lunar surface.

Space activities are gaining momentum this year. In April, Thailand officially kicked off its first space tech programme, with plans to send five satellites into space. The last one will fly to the Moon's orbit by 2027. Last month, the cabinet gave the green light to the first draft bill on space to promote the new space economy. However, it needs to go through the Council of State and both houses.

— Thana Boonlert

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