13 October 2021

ALTECH – HALLOYSITE DISCOVERED AT KERRIGAN KAOLIN DEPOSIT

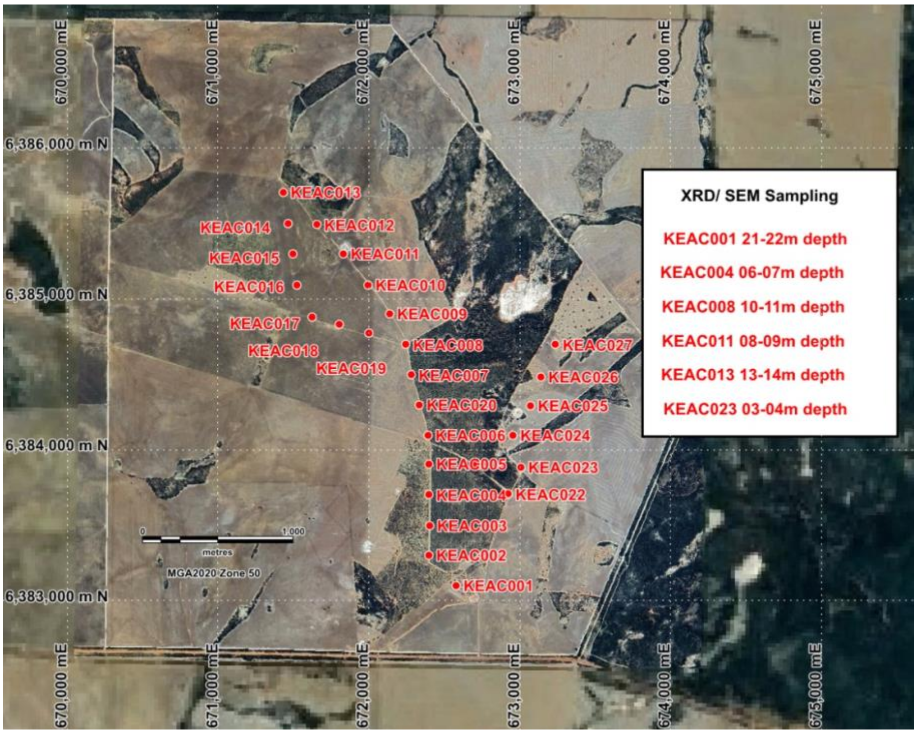
Highlights

- Halloysite discovery at Kerrigan kaolin deposit
- Halloysite nanotubes could replace carbon nanotubes in high-tech applications
- More detailed investigation planned for the Kerrigan deposit

Altech Chemicals Limited (Altech/the Company) (ASX: ATC) (FRA: A3Y) is pleased to announce the discovery of halloysite at its Kerrigan kaolin deposit in Western Australia. The halloysite was observed during the recent processing of samples from its 2020 air-core drilling campaign[1] (Figure 1).

The Kerrigan deposit is located 20kms south of the central wheat belt town of Hyden, Western Australia and sits within exploration licence E70/4718-I, which covers an area of approximately 480km^2. The licence was granted in 2015 and is 100% owned by Altech.

Figure 1 - Location of 2020 air-core drilling and XRD/ SEM sample locations



[1] Refer to Altech ASX Announcement 14 January 2020

Halloysite is a tubular form of the kaolin group of minerals where the mineral naturally occurs as nanotubes; microscopic tubes, the diameter of which is measured in nanometres (one millionth of a millimetre). The properties of halloysite nanotubes make halloysite products ideally suited to a diverse range of specialist applications, attracting a significant premium above the average kaolin price. Halloysite has long been prized in the manufacture of high-grade porcelain and ceramics improving strength and chip-resistance.

Halloysite has attracted research interest for the development of new products such as fibre reinforcement in polymers and as micro-containers for controlled delivery of active agents. More recently, halloysite has been promoted as a lower cost alternative to carbon nanotubes which have many high-tech applications such as hydrogen storage and carbon capture.

Initial x-ray diffraction (XRD) and scanning electron microscopy (SEM) investigations into the presence of halloysite in Altech's Kerrigan kaolin deposit are encouraging, One of the six samples examined demonstrated abundant tubular structures consistent with halloysite (Figures 2 and 3). Three other samples examined demonstrated similar halloysite rod like structures and their tubular nature will be confirmed with further investigation.

Figure 2 – SEM Photo of Halloysite sample 10um scale

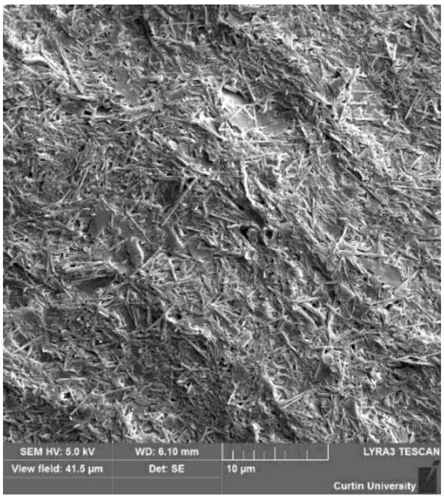
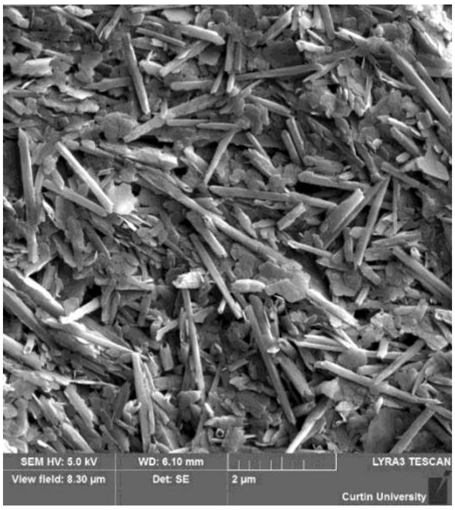


Figure 3 – SEM photo of Halloysite at 2um scale



The Company has embarked on further test work involving 31 samples which will aim to confirm and determine the significance of the initial results. The occurrence of halloysite within the Kerrigan kaolin deposit does not imply any economic benefit at this stage of test work. The Company remains committed and focussed on finalising finance for its high purity alumina (HPA) plant in Johor, Malaysia and advancing the preliminary feasibility study for construction of a battery materials high purity alumina coating plant in Saxony, Germany.

Authorised by: Iggy Tan (Managing Director)

Competent Person's Statement

The information in this report that relates to exploration results is based on information compiled by Jeff Randell, a Competent Person, who is a Member of the Australian Institute of Geoscientists. Mr Randell is a Senior Consultant of Geos Mining and has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC Code). Mr Randell consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

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About Altech Chemicals (ASX:ATC) (FRA:A3Y)

Altech Chemicals Limited (Altech/the Company) is aiming to become one of the world's leading suppliers of 99.99% (4N) high purity alumina (Al2O3) through the construction and operation of a 4,500tpa high purity alumina (HPA) processing plant at Johor, Malaysia. Feedstock for the plant will be sourced from the Company's 100%-owned kaolin deposit at Meckering, Western Australia and shipped to Malaysia.

HPA is a high-value, high margin and highly demanded product as it is the critical ingredient required for the production of synthetic sapphire. Synthetic sapphire is used in the manufacture of substrates for LED lights, semiconductor wafers used in the electronics industry, and scratch-resistant sapphire glass used for wristwatch faces, optical windows and smartphone components. Increasingly HPA is used by lithium-ion battery manufacturers as the coating on the battery's separator, which improves performance, longevity and safety of the battery. With global HPA demand approximately 19,000t (2018), it is estimated that this demand will grow at a compound annual growth rate (CAGR) of 30% (2018-2028); by 2028 HPA market demand is forecast to be approximately 272,000t, driven by the increasing adoption of LEDs worldwide as well as the demand for HPA by lithium-ion battery manufacturers to serve the surging electric vehicle market.

German engineering firm SMS group GmbH (SMS) is the appointed EPC contractor for construction of Altech's Malaysian HPA plant. SMS has provided a USD280 million fixed price turnkey contract and has proposed clear and concise guarantees to Altech for plant throughput and completion. Altech has executed an off-take sales arrangement with Mitsubishi Corporation's Australian subsidiary, Mitsubishi Australia Ltd (Mitsubishi) covering the first 10-years of HPA production from the plant.

Conservative (bank case) cash flow modelling of the project shows a pre-tax net present value of USD505.6million at a discount rate of 7.5%. The Project generates annual average net free cash of ~USD76million at full production (allowing for sustaining capital and before debt servicing and tax), with an attractive margin on HPA sales of ~63%. (Refer to ASX Announcement *"Positive Final Investment Decision Study for 4,500TPA HPA project"* dated 23 October 2017 for complete details. The Company confirms that as at the date of this announcement there are no material changes to the key assumptions adopted in the study).

The Company has been successful in securing senior project debt finance of USD190 million from German government owned KfW IPEX-Bank as senior lender. Altech has also mandated Macquarie Bank (Macquarie) as the preferred mezzanine lender for the project. The indicative and non-binding mezzanine debt term sheet (progressing through due diligence) is for a facility amount of up to USD90 million. To maintain project momentum during the period leading up to financial close, Altech has raised ~A$39 million in the last 24 months to fund the commencement of Stage 1 and 2 of the plant's construction; Stage 1 construction commenced in February 2019 with Stage 2 early works completed at the end of June 2020.

Forward-looking Statements

This announcement contains forward-looking statements which are identified by words such as 'anticipates', 'forecasts', 'may', 'will', 'could', 'believes', 'estimates', 'targets', 'expects', 'plan' or 'intends' and other similar words that involve risks and uncertainties. Indications of, and guidelines or outlook on, future earnings, distributions or financial position or performance and targets, estimates and assumptions in respect of production, prices, operating costs, results, capital expenditures, reserves and resources are also forward-looking statements. These statements are based on an assessment of present economic and operating conditions, and on a number of assumptions and estimates regarding future events and actions that, while considered reasonable as at the date of this announcement and are expected to take place, are inherently subject to significant technical, business, economic, competitive, political and social uncertainties and contingencies. Such forward-looking statements are not guarantees of future performance and involve known and unknown risks, uncertainties, assumptions and other important factors, many of which are beyond the control of the Company, the directors and management. We cannot and do not give any assurance that the results, performance or achievements expressed or implied by the forward-looking statements contained in this announcement will actually occur and readers are cautioned not to place undue reliance on these forward-looking statements. These forward-looking statements are subject to various risk factors that could cause actual events or results to differ materially from the events or results estimated, expressed or anticipated in these statements.

JORC Code, 2012 Edition – Table 1 report template

1 Section 1 - Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.*	• Samples collected at one metre intervals down each hole in 900mm x 600mm and 350mm x 250mm green plastic bags laid out in rows at each drill site. Sample material was collected via a cyclone and nominal 75:25 cone splitter fitted to the drilling rig. • The larger sample was collected for analysis and testwork while the smaller sample was collected as a retained representative sample of each metre drilled. • Each large and small sample was weighed to determine the consistency of the split ratio; results indicate a high degree of variability with split ratios varying from as little as 5% to a maximum of 53% with an average of 20% from 325 samples • Non-kaolin material collected in the larger bags was poured back down the drill hole or removed from site and taken to the local rubbish tip. • Chip tray samples were also collected for each metre drilled and have been photographed
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	• 27 aircore drill holes at nominally 200m spacing along existing tracks • All holes were drilled vertically using a 3.25" (~83mm) blade bit.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	• Sample weights were measured for the kaolin samples (large bag and small bag) using a household electronic set of scales. Data was recorded in the lithology file. • In total, 325 samples were retained as kaolin samples for possible testwork and analysis • Sample weights were variable but there is no known bias between sample weight and kaolin brightness or sample grain size
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical*	• Geological logging was carried out on each one metre drilling interval from the larger sample collected through the cyclone. • Logging codes used are those adopted by CRAE in their 1990's exploration

Criteria	JORC Code explanation	Commentary
	studies. • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	• Lithology codes were limited to a simple list of 9 choices while colour codes used comprised 22 descriptive terms. Kaolin colours were limited generally to HWH (high white), OWH (Off White), OWC (Off White Cream) and CRM (cream) and used as a proxy for visual brightness for each sample.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• As mentioned above, sample material was collected via a cyclone and nominal 75:25 cone splitter fitted to the drilling rig. • The larger sample was collected for analysis and testwork while the smaller sample was collected as a retained representative sample of each metre drilled. • Samples were dried, riffle split then wet screened at 0.3mm • Screened weights were recorded then selected minus 0.3mm fractions were filter pressed, cone and quartered
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* • *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.* • *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*	• Field duplicates of kaolin samples were taken every 20 to 25 kaolin samples for a total of 15 samples. Samples were manually put through the cone splitter twice to obtain a 50% split. • Standards were not available for use in this program • 325 samples were analysed by XRF and ICP for a suite of 23 oxides, LOI, B, Ce, La, Li, Th and U. • 6 samples manually wet-sieved through a 44 µm sieve-cloth, and the -44 µm fraction retained.The suspensions were placed in an oven at 65 °C to remove all water. After drying, approximately ¼ of the -44 µm fraction was dispersed in water with a dispersing agent, ultrasonically probed to break up any aggregates, and left to settle for 252 min to obtain the -2 µm fraction. The suspension containing the -2 µm fraction was withdrawn from the containers and placed in drying pans on a hotplate at 60 °C and all water was removed. Finally, the recovered -2 µm fraction was resuspended in water in a 1:3 mass ratio and spray-dried at 150 °C to form spherical particles of randomly-oriented clay particles. • The spray-dried powder was top-loaded into specimen holders and diffraction data collected using a Bruker D8 Discover diffractometer

Criteria	JORC Code explanation	Commentary
		with Fe-filtered Co Kα radiation over the range 4 – 120° 2θ with a step size of 0.03° 2θ. • Samples for Scanning Electron Microscopy were prepared in three ways: droplet material, spray dried material and re-dispersion material. Sample morphology was analysed by Field Emission Scanning Electron Microscopy (FeSEM) using a Tescan Lyra instrument. Imaging was performed at electron beam energy of 5 kV with a secondary electron detector. Energy Dispersive x-ray Spectroscopy (EDS) was performed at 20 kV using an Oxford Instruments EDS detector and software.
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	• This program was designed to replicate historical drilling results • Hole collars and traces were plotted using Micromine software and lithology types and clay colours added. Previous drilling data was incorporated and sections produced for each drill hole.
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• Collar coordinates were measured using a hand-held GPS in MGA94 Zone 50 coordinate system; no down hole surveys were taken. • Collar coordinates varied up to 31m when measured over several days but averaged 9-10m in variability. Elevation measurements were taken but varied considerably from 375m to 411m and are not considered reliable. • A differential GPS was later used to provide accurate coordinates (+-5cm horizontal, +- 30cms RL)
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* • *Whether sample compositing has been applied.*	• Holes were nominally spaced at 200m intervals along existing tracks and were designed to replicate earlier drilling by CRAE and Graphite Holdings • Samples at 1m intervals were not composited
Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* • *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	• All drill holes were vertical due to the target kaolin horizon being a weathering feature as part of the sub-horizontal weathering profile

Criteria	JORC Code explanation	Commentary
Sample security	• *The measures taken to ensure sample security.*	• Samples were initially stored on site in a secure shed • Samples were later transported to the company Meckering Mining Lease
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• No audits have been carried out.

2 Section 2 - Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* • *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	• Exploration Licence E70/4718-I is held 100% by Canning Coal Pty Ltd, a subsidiary of Altech Chemicals Limited • Drilling was approved under Program of Work 83079
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• Historical aircore and diamond drilling was completed by Graphite Holdings P/L and CRAE in 1993-1994 • Bulk sampling was carried out by Minerals Corporation who constructed two test pits • A Mineral Resource Estimate was compiled in 2011
Geology	• *Deposit type, geological setting and style of mineralisation.*	• Weathering of Archaean granite has resulted in a regolith profile including a pallid zone comprising kaolin group minerals

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td>Drill hole Information</td><td>A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:
easting and northing of the drill hole collar
elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar
dip and azimuth of the hole
down hole length and interception depth
total drillhole length.
If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.</td><td>Drill hole details are shown below
<table>
<tr><th>Hole No.</th><th>GDA94_E</th><th>GDA94_N</th><th>RL</th><th>Dip</th><th>EOH</th><th>Date Drilled</th></tr>
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</table></td></tr>
<tr><td>Data aggregation methods</td><td>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.
Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.</td><td>Data aggregation methods were not used</td></tr>
</table>

Criteria	JORC Code explanation	Commentary
	• *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	• Drilling was carried out orthogonal to the general weathering layering • In detail at the metre-scale, the physico-chemical variations are expected to define troughs and crests marking boundaries between variably weathered granite annotated as kaolin or mottled clays
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	• A plan view of the drilling locations is shown in the text
Balanced reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	• The included text is considered to be balanced and representative
Other substantive exploration data	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	• Previous explorers have carried out considerable testwork from previous drilling samples
Further work	• *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• An additional 31 samples have been selected for additional XRD and SEM testwork