THE SOCIETY FOR ORGANIC PETROLOGY

NEWSLETTER

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The 38th Annual TSOP Meeting

Sofia, Bulgaria, 2021

The Church of St. George Rotunda in Sofia (photo from Wikipedia)

The 38th Annual TSOP Meeting will be held in Sofia, Bulgaria in 2021.

Stay Tuned for more details!

The Society for Organic Petrology

TSOP is a society for scientists and engineers involved in coal petrology, kerogen petrology, organic geochemistry and related disciplines. The Society organizes an annual technical meeting and field trips; sponsors research projects; provides funding for graduate students, and publishes a website, Facebook Page, quarterly newsletter, annual meeting program and abstracts and special publications. Members are eligible for discounted subscriptions to Elsevier journals ***International Journal of Coal Geology*** and ***Review of Palaeobotany and Palynology***.

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GUIDELINES:
The TSOP Newsletter welcomes contributions from members and non-members alike. Readers are invited to submit items pertinent to TSOP members' fields of study. These might include meeting reports and reviews, book reviews, short technical contributions including those on geologic localities or laboratory methods, as well as creative works such as poems, cartoons and works of fiction. Photos, graphs and other illustrations are welcomed. Low-resolution images are discouraged, as they cannot be reproduced well in print. Articles are preferred in Microsoft Word, RTF or plain text formats.

Contact the Editor:
Rachel Walker editor@tsop.org

Membership Information:
Please report any changes in address or contact information to Brett Valentine, TSOP Membership Chair:
bvalentine@usgs.gov

Members can also update their own information by logging into the secure TSOP website:
www.tsop.org/mbrsonly/

The TSOP Newsletter is published quarterly by The Society for Organic Petrology and is distributed to all Society members as a benefit of membership.

Membership in the Society is open to all individuals involved in the fields of organic petrology and organic geochemistry. For more information on membership and Society activities, please see: www.tsop.org

For purposes of registration of the TSOP Newsletter, a permanent address is:
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Newsletter Submission Deadlines

September Issue: Sept. 10th, 2020
December Issue: Dec. 10th, 2020
March Issue: March 10th, 2021
June Issue: June 10th, 2021

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TSOP Membership Dues

TSOP dues payments are due on or before **December 31st each year.** We encourage you to check your dues status and make your payment so that you can continue your TSOP membership and support the society and its work.

TSOP dues are currently set at:

Individuals:

- $25 per year or
- $100 for 5 years (5 years for the price of 4!)

Students:

- $15 per year

Institutional/Corporate:

- $75 per year

You can use our convenient online dues payment system to pay dues by credit card, check (US Members), or money order.

You can login at:
www.tsop.org/mbrsonly/

and select 'Online dues payment' or go to:

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and access the online form without logging in.

Thank you for your interest and support of TSOP and we look forward to a renewal of your TSOP membership.

www.facebook.com/OrganicPetrology

TSOP is an AAPG Affiliated Society. Abstracts from annual meetings are available through **AAPG Datapages**.

Guinness Book of World Records

Fastest Coal Shoveling by a Team

The record for filling a 508 kg (0.5 ton) hopper with coal using a banjo shovel by a team of two is 14.8 seconds, by Brian Coghlan and Piet Groot (both New Zealand) at the opening of the Brunner Bridge, South Island, New Zealand, on 27 March 2004.

ASSESSING PELLET FUELS QUALITY: A NOVEL APPLICATION FOR REFLECTED LIGHT MICROSCOPY

Zbigniew Jelonek, Agnieszka Drobniak, Maria Mastalerz, Iwona Jelonek

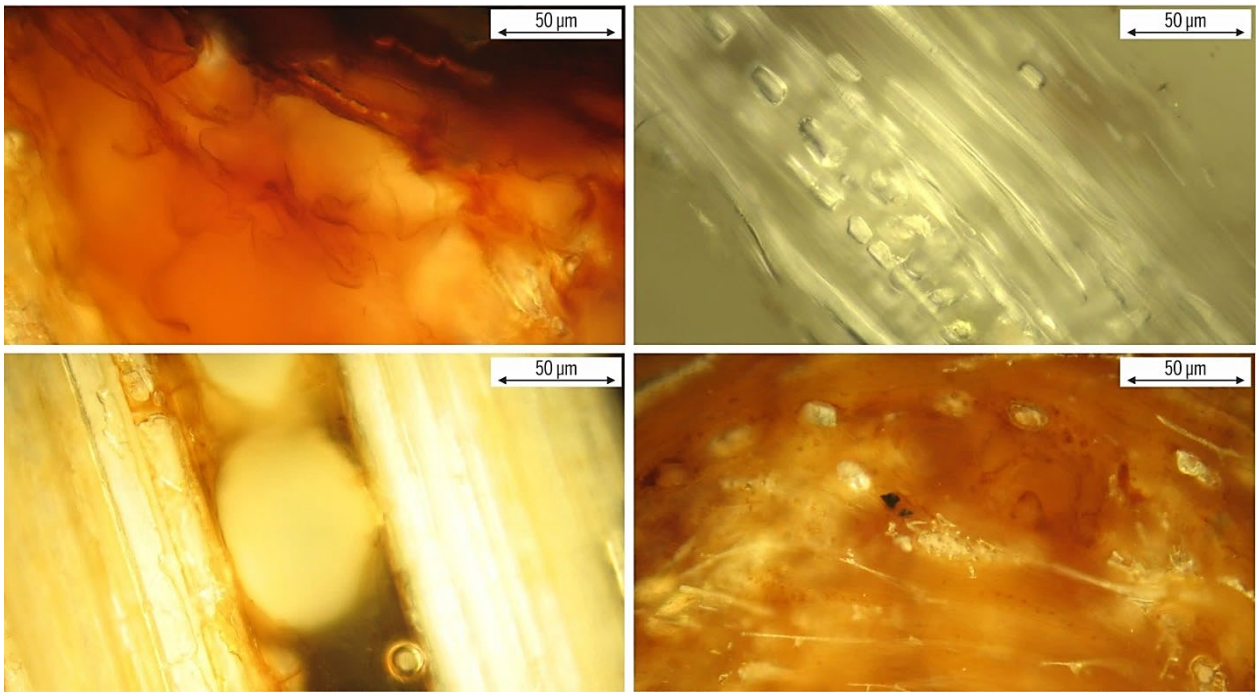
Manuscript published in: International Journal of Coal Geology 222 (2020) 103433
https://doi.org/10.1016/j.coal.2020.103433

As the interest in the renewable resources has been increasing worldwide, the wood pellet sector has the potential to become a mainstream fuel of the future in the heat market. This development is especially noted in the European Union countries which consumed 50 % of global wood pellets in 2018. While only about 2 % of the United States energy consumption was derived from wood and wood waste in 2018, the U.S. pellet production continues to grow exponentially due to high demand from overseas markets.

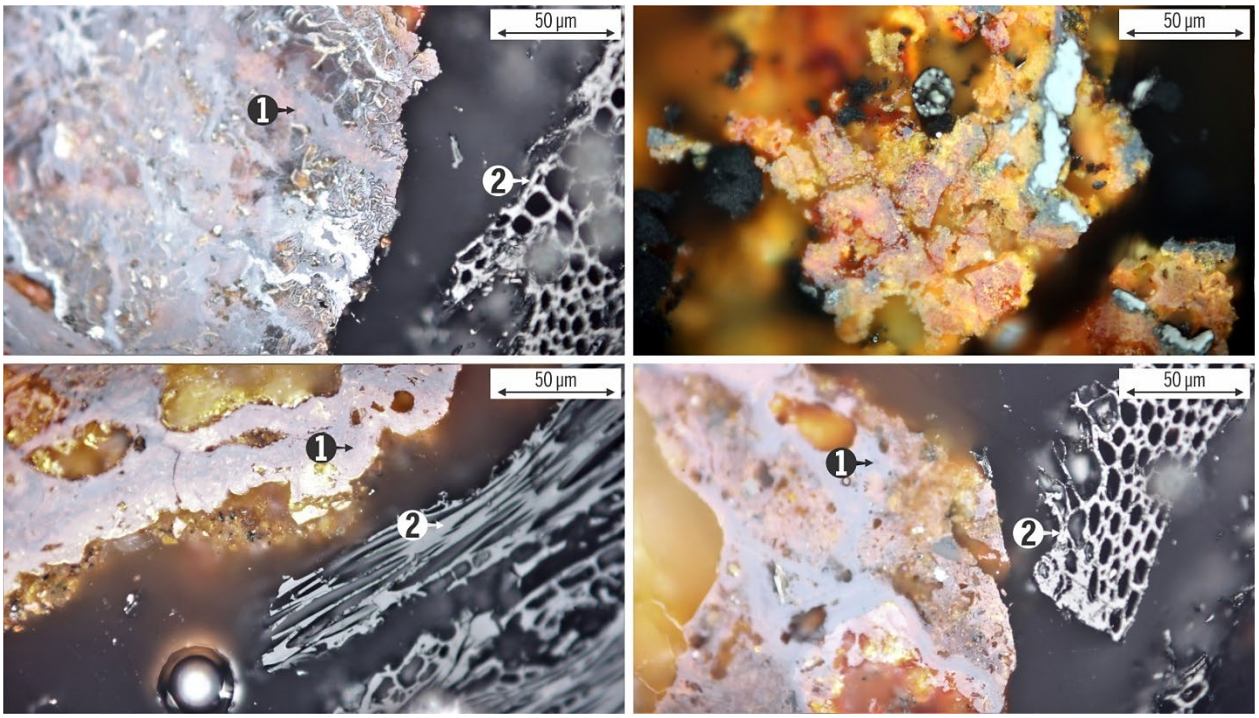
The U.S. pellet production was 8.2 million tons in 2018, making the United States the second largest producer of pellets in the world, surpassed only by China.

In this growing market, a question has emerged: How can pellet quality be reliably assured? Current standards test the quality of pellets based on a variety of physical and chemical properties. However, some impurities in pellets (glass, plastic, metal, ceramics, coal, and coke) cannot be identified this way. Those impurities can have negative impacts on the environment, human health, and the durability of stoves.

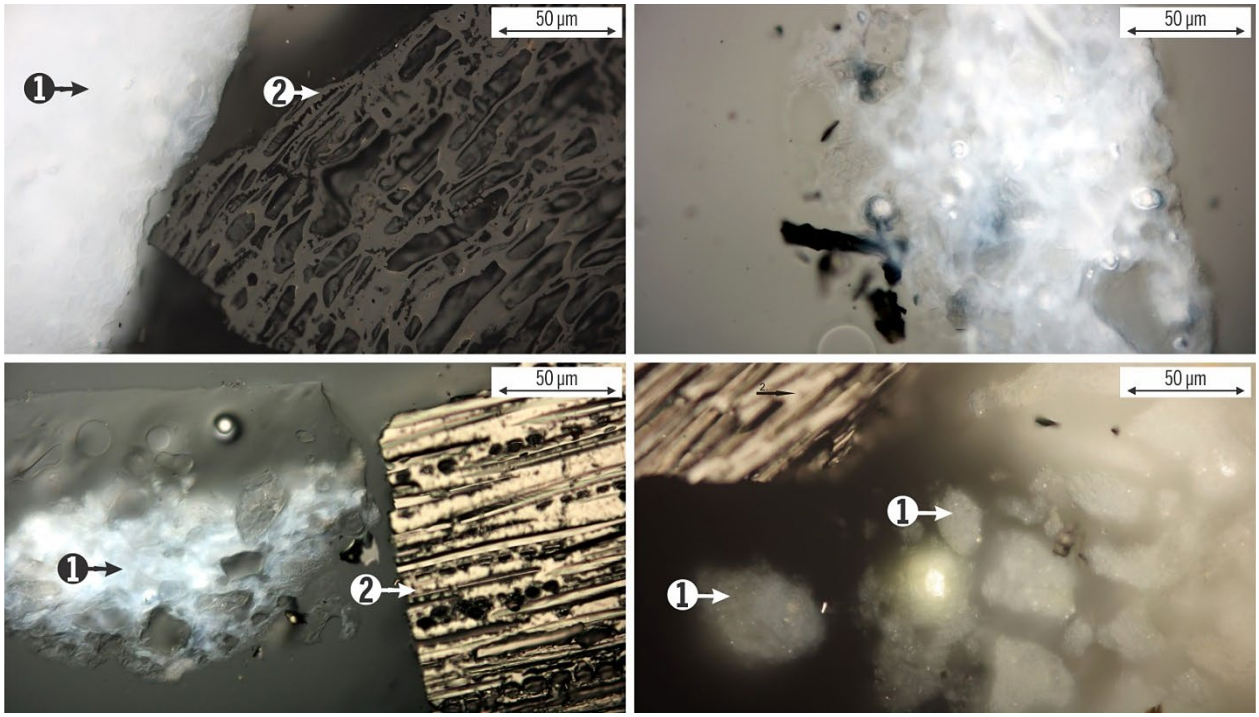
A quick and simple way to identify and quantify impurities in pellet fuels such as wood pellets and grilling briquettes is by using petrographic methods. In this study we used reflected light microscopy to identify a range of contaminants including bark, glass, plastic, coal, coke, slag, mineral matter, and metals in 514 commercially available wood pellets made in Poland, Ukraine, Germany, and the United States. Our results demonstrate that optical microscopy could become an effective tool for assessing the purity of wood pellets, and as such, it might be a valuable addition to physical and chemical tests used in the current standards.



Photomicrographs of biomass in wood pellets, reflected white light, oil immersion.



Photomicrographs of rust in wood pellets, reflected white light, oil immersion, 1– rust, 2 – charcoal.



Photomicrographs of glass in wood pellets, reflected white light, oil immersion, 1 – glass, 2 – charcoal.

Secondary microbial methanogenesis in the coal beds of the Raniganj Basin, India: A future quest for microbially enhanced methane production

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The Raniganj basin is one of the most productive basins in India, which has been widely explored for coal bed gas. The coal beds of the Raniganj Basin comprise coals with maximum vitrinite reflectance ($R_{o\ max}$) values greater than 0.90%. Hence, the gas generated within these medium rank coals is primarily thermogenic in origin (following the reference scale of the vitrinite reflectance values mentioned by Gao et al., 2014). The authors carried out the stable carbon and hydrogen isotopes of coal bed methane ($\delta^{13}C\text{-}CH_4$ and $\delta D\text{-}CH_4$, respectively) and stable hydrogen and oxygen isotopes of associated formation water ($\delta D\text{-}H_2O$ and $\delta^{18}O\text{-}H_2O$, respectively) samples to find any ambiguity present in the thermogenic signature of the coal bed gas.

The $\delta^{13}C$ and $\delta D–CH_4$ of the coal bed gas collected using the Isotubes®, were analyzed by IsoPrime GC-C-IRMS at the School of Earth and Environmental Sciences, The University of Queensland, Australia. An Isoprime DI-IRMS was used for analyzing the $\delta^{18}O$ and $\delta D\text{-}H_2O$ (Ghosh et al., 2018). The $\delta^{13}C\text{-}CH_4$ (-49.5 to -47.4 ‰), and the $\delta D\text{-}CH_4$ (-207 to -211‰) may indicate the secondary microbial influences on the primary thermogenic signature of the methane.

The Whiticar-style plot (Fig. 1) shows that the gas samples lie on the boundary between the fields of thermogenic and microbial CH_4 (Ghosh et al., 2018). Relatively high $\delta D\text{-}CH_4$ and moderate $\delta^{13}C\text{-}CH_4$ values of the gas samples along with the $\Delta D_{CH4\text{-}H2O}$ values (173–175‰) values may indicate that the gas samples although having the thermogenic origin, would have been altered, secondarily, by microbial methane generation by the CO_2 reduction pathway. Additionally, the relation between the $\delta D\text{-}H_2O$ and $\delta^{18}O\text{-}H_2O$ (Fig. 1) plots the samples on the global meteoric water line, indicating the effect of secondary methanogenesis on the formation water (Ghosh et al., 2018). Thus, the stable isotopic compositions reveal the influences of secondary microbial methanogenesis on the primary thermogenic signature of the CH_4.

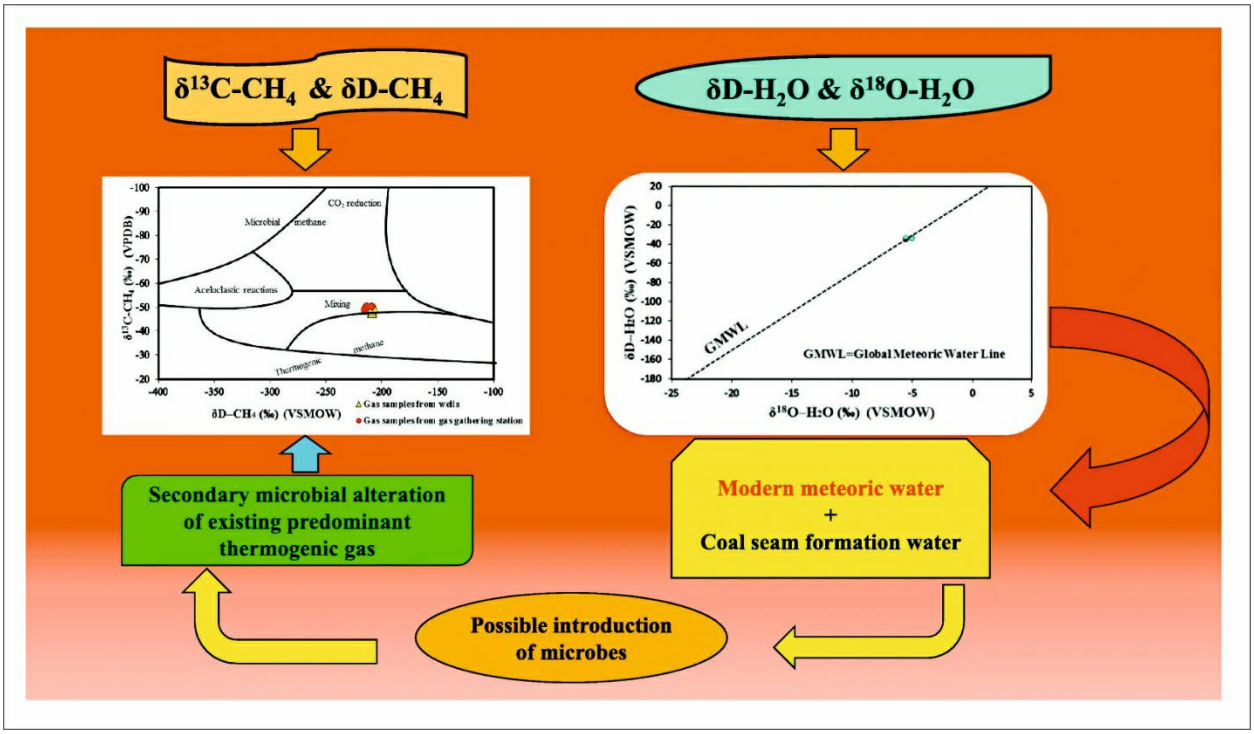

Fig. 1. Secondary microbial methanogenesis in the coal beds of the Raniganj Basin, India (after Ghosh et al., 2018).

The above crucial findings may lead to the research and development of microbially enhanced methane generation technique from the coal beds of the Raniganj Basin in the near future. Colosimo et al. (2016) had summarized the recent technologies for stimulating the in situ microbial methane production such as biostimulation, bioaugmentation, enhancing the contact surface area between the coal and microbial consortium, and augmenting the bioavailability of the organic matter in coal. These techniques may be used separately or in the right combination for enhancing the production of microbial coal bed methane from producing wells as well as from depleted wells of the Raniganj Basin. In complementary, the gas molecular compositions coupled with the stable isotopic compositions of the shale gas and formation water samples could be investigated in this basin and other potential basins of India to look at the ongoing methanogenesis pathways for microbially enhanced shale gas production in the near future.

References

Colosimo, F., Thomas, R., Lloyd, J.R., Taylor, K.G., Boothman, C., Smith, A.D., Lord, R., Kalin, R.M., 2016. Biogenic methane in shale gas and coal bed methane: a review of current knowledge and gaps. Int. J. Coal Geol. 165, 106–120. https://doi.org/10.1016/j.coal.2016.08.011

Ghosh, S., Golding, S.D., Varma, A.K., Baublys, K.A., 2018. Stable isotopic composition of coal bed gas and associated formation water samples from Raniganj Basin, West Bengal, India. Int. J. Coal Geol. 191: 1-6. https://doi.org/10.1016/j.coal.2018.02.019

CALENDAR OF EVENTS
2020

Please send in meeting, short course and special event announcements to the Editor
http://www.tsop.org/events.html

AAPG	AAPG Annual Convention and Exhibition postponed. Yet to be rescheduled. https://ace.aapg.org/2020
PCC	**September 8 – 11, 2020** **Virtual Conference Event** https://www.engineering.pitt.edu/pcc/
TSOP The Society for Organic Petrology	***September 14 - 18, 2020*** **37th Annual TSOP Meeting - CANCELLED**
ICCP	***September 16 – 23, 2020*** **ICCP Conference – CANCELLED**
THE GEOLOGICAL SOCIETY OF AMERICA®	***October 26 - 30, 2020*** **Virtual Conference Event** https://community.geosociety.org/gsa2020/home