PREDICT-K "TIP OF THE MONTH"

Proppant Consortium Website

All employees of Proppant Consortium member companies have full access to the Proppant Consortium website. A link to the website can be found on the left side of Stim-Lab's page on the CoreLab website at www.corelab.com/stimlab.

The link will take you to CoreLab's Core ClientWeb where you will input your username and password to gain access. The Proppant Consortium website contains all of the data from the 30-year history of the Proppant Consortium. The "Previous Data & Updates" tab contains all of the reports and presentations from each Consortium meeting, and the newest software version in addition to training only visible to Consortium members can be found under the "Software" tab. For a search of Consortium data based on a specific keyword or phrase, you can use the "Proppant Search Engine". Here you can search any period for information related to a specific topic.

2016 Consortia Update - updated August 6, 2016

Access Stim-Lab Proppant Consortium Search Engine - new

Proppant Conductivity Consortium Introduction:

The Proppant Consortium for the investigation of the impact of fracturing fluids upon the conductivity of proppants was begun in 1986. Since then, the consortium has grown from 18 to 50 members. The consortium has four areas of study:

1. Determination of the long-term conductivity of proppants (baseline data).
2. The evaluation of the impact of fracturing fluid leakoff and damage upon proppant conductivity.
3. Determination of the impact of non-Darcy and multiphase flow on effective conductivity.
4. Evaluation of proppant flowback.

Baseline Data and Turbulence Factors:
In the baseline data, the consortium has produced a database of 50 proppants vs. type, size, concentration, closure, temperature and rock hardness. The baseline proppant data was originally placed in a program called PredictK. The program also has a series of equations to predict the conductivity with various frac fluids. In 2002 a new stand-alone windows based application of was created which includes more fundamental production predictions that were started in SL Frac. This version makes interacting with the Stim-Lab database of proppants more efficient and adds new capabilities to a continuously developing product. The new program achieves the objectives of combining PredictK, SL Frac and Cleanup.

Work is continuing to supplement conductivity and turbulence data for proppants with limited data. Methods are being investigated to determine the most effective method to generate turbulence data. New proppant supplier data will be added as data is generated and becomes available.

Frac Fluid Cleanup Over 250 combinations of fluids, gel types, crosslinkers, and breakers at various temperatures and permeabilities have been evaluated. The data has been placed in a database that shows the retained conductivity vs. fluid type, temperature, breaker and core permeability.

At present, work continues in the investigation of cleanup vs. fluid type; rate and proppant concentration in an effort to define cleanup based on velocity rather than delta pressure to initiate flow. Low shear viscosity or yield point values, which have proved difficult to measure for broken gels, should be ideal to use in predicting if adequate reservoir energy exists to initiate cleanup in any particular part of the hydraulic fracture. At this point, we have not been able to identify a method that correlates with the observed cleanup with which to make these measurements. Simulators use velocity to iterate on fracture conductivity for beta factor and cleanup properties, given a created propped fracture length, proppant type and reservoir characteristics. Currently the simulation effort in PredictK specifies the maximum possible cleanup and looks at achievable velocities to estimate the expected degree of cleanup. Further investigation hopes to develop velocity cleanup curves for various fluid types.

Flowback of Proppant:
Proppant flowback evaluations have been extended to include gas and water at high closures vs. proppant size. The mechanical properties of proppant packs with and without resin coating are under investigation.

The objective is to develop an understanding of the principal factors controlling the flowback of proppant from hydraulic fractures. From a modeling standpoint, understanding a single flowing phase in base proppant and extending that understanding to the influence of cohesive factors such as surface tension in multiphase flow, flowback control additives and finally resin coated proppants are defined as the steps to achieving an effective model. The recent modeling effort is being guided by work by Professor Joseph at the University on Minnesota who has examined the movement of particles in thin fluids. Key experiments to confirm model predictions are currently in progress.

Donated Data:
A section in each consortium report is available for only consortium members to donate conductivity data accumulated by private testing at Stim-Lab. These studies have been funded privately, outside of the
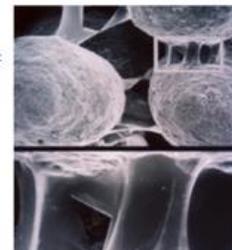
These Predict-K tips are emailed so they can be easily forwarded to others that may not be on the email distribution list. We hope you enjoy these tips and find them useful, but if you would like to be removed from this list please click the Unsubscribe link below. A new email will be created using your default email client. If the link does not work for you simply reply to this email with 'Unsubscribe' in the subject line and you will be removed from the list. If this email was forwarded to you and you would like to be added to the distribution list, please forward this email to Stimlab.Contact@corelab.com with 'Subscribe' in the subject line.
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To view the Predict-K Tip of the Month archive please go to: http://www.corelab.com/stimlab/predictk-tip-of-the-month

To view our Predict-K training videos main page please go to: http://www.corelab.com/stimlab/training-videos

Predict-K Training Videos (opens in YouTube):

1. How to obtain your license for Predict-K and Proppant Manager

2. Predict-K Main Screen

3. Quick Entry

4. Predict-K General Structure

5. Creating a New Proppant Manager Database

6. Running the Proppant Manager Correlations

7. Exporting Proppant Manager Results to Predict-K

8. Baseline Conductivity   Demonstration Base Project for Videos 8 - 10

9. Dynamic Conductivity

10. Production Analysis Overview

11. Adding Production Data to Predict-K   Demonstration Base Project for Video 11   Simulated Production Data Excel File

12. Matching Production Data

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