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Methanol Rate for Hydrate Inhibition

VIMALESH AGNIHOTRI

Senior Process Engineer at Engineers India Limited

What are the methods available to estimate methanol dosing rate to prevent hydrate inhibition?

I had used HYSYS but the rates predicted by hysys are very high.

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Wilfredo Garcia

Process Specialist at Ecopetrol

Dear Vimalesh,

Wilfredo

I'm not sure if I have a paper regarding this topic, but a good start should be the GPSA. Bare in mind that the MEG injection rate depends on the water content in the gas and the level of dehydration you expect.

Cheers,

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Emad El Gebesy

Maersk Oil Qatar, Engineering Services

Emad

it can be done effectively by hysys, but u have to modify the thermodynamic package.

please mail me on

emad.gebesy@worleyparsons.com

and i will send u details

cheers

emad

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Mohammadreza Ebrahimi

Senior Process Eng. at Nargan Engineers & Constructors

Dear Vimalesh

Mohammadreza you can estimate methanol rate by PVTSIM software.

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ANJARIA HITESHKUMAR M.

LEAD TECHNICIAN at ExxonMobil

ANJARIA

Also consider the disposal limitation where used methanol will be disposed.

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**VIMALESH AGNIHOTRI****Senior Process Engineer at Engineers India Limited**

Thanks to all.

VIMALESH

Dear Mr. Garcia, Actually the Gas is dehydrated gas and has very less water content. Hence the GPSA method is giving very less flow rates of methanol compare to HYSYS method. I want to know which method is correct?

As per GPSA, GPSA method has many applicability limitation in point of view of concentration of methanol. Further, GPSA method do not provide different methods to suppress different types of Hydrates like Hydrate-type I, II etc.

I request all to share his experience and feedback regarding the correct methods to suppress different types of hydrates.

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**VIMALESH AGNIHOTRI****Senior Process Engineer at Engineers India Limited**

Dear Mr. Emad, I have sent you email. Please share your experience on this topic. Thanks

VIMALESH

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**VIMALESH AGNIHOTRI****Senior Process Engineer at Engineers India Limited**

Dear Mr. Ebrahimi, Thanks for your reply. Can you please share with me the metahos/procedure to use PVTSIM to estimate methanol rate. You can mail me on

VIMALESH

vimallesh.agnihotri@eil.co.in

Thanks

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**VIMALESH AGNIHOTRI****Senior Process Engineer at Engineers India Limited**

Dear Mr. Anjara, we are using methanol to suppress hydrate in the gas lift to wellhead at offshore unmanned platforms. hence disposal of same is not a concern here.

VIMALESH

Thanks.

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**Vipin Deshpande****Head of Department - Process at SNC Lavalin Engineering India Pvt. Ltd.**

Dear All,

Vipin

I happened to see all your discussion, when I was searching for the subject on net, with which this discussion had started.

I have a same finding for prediction of methanol injection rate, that the flow estimated by HYSIS for hydrate inhibition is comparatively higher than GPSA method. However, I could not find satisfactory reasoning that can justify HYSIS results.

How you conclude this discussion? Kindly reply me ASAP.

Thanks

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**Leila Hassanzadeh****Oil & Gas Process Engineer**

Dear All, in my ongoing project, I need to calculate methanol rate for injection in gas lift, as you said Hysys gives high flow rate and GPSA is not applicable because operating condition. so it is appreciated to share the conclusion.

Leila

regards,

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**Amir Mofidi****Sr. Process Engineer at Wintershall**

For Methanol flowrate calculation, you need to figure out first, for what conditions you want to use Methanol to cater for hydrate formation. For instance, if it is for a gas well, you need to consider the extreme conditions, which are basically during start-up of the well. Then you need to identify the philosophy. e.g how fast the start-up will be executed and etc.

Amir

For hydrate formation in a pipeline, you to draw the hydrate line along the pipeline and embed it on the temperature profile of the pipeline to find out the extreme conditions.

Regarding the type of inhibitor you need to consider the application and the parameters that you have. For instance you can not use KHI for suppression temperatures more than 7~10 C.

After identifying the extreme conditions and philosophy, you need to calculated the inhibitor flowrate. For calculating the flowrate, you should also take the inhibitor evaporation in to vapor phase in to consideration. The flowrate which is calculated by HYSYS takes this effect in to account. Furthermore, for some applications like formation water production from a gas well, the salt effect shall also be considered. The higher the salt concentration the lower hydrate formation temp. and thereby the less inhibitor flowrate. The effect of salt concentration can't be applied in HYSYS, but perhaps in PVTsim it can be applied. Using the GPSA method you can include the salt concentration impact on the inhibitor flowrate.

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Hooman

Hooman Tabaraei
Specialist Process Engineer (MIChemE, CEng)

Dear All - Currently in a similar job we need to study all possible scenarios to reduce hydrate formation temperature of dried gas, outlet from existing MEG unit. We found that the results of PROMAX in estimation of hydration formation temperature in compared with HYSYS were so closed to exprimental results which all confirmed by client later. And consequently the amount of inhibitor to suppress the hydrate formation temperature as per PROMAX will be more reliable in compared with HYSYS results.

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