
Question 79 It has been reported that diisobutylene (isooctene) causes a stability problem when blended in gasoline. Do you have experience blending diisobutylene in gasoline? And if so, were there stability or other problems?

GRUBB (Chevron USA, Inc.)

I consulted our corporate experts for this, Shingou Lou and Dave Kohler. We built one in Pascagoula and their basic response was that there's really no reason to expect any more instability problems than you would have with normal olefins. And as with the other olefins, if you let them go unchecked, they could lead to an insoluble gum residue. These can be mitigated effectively with some antioxidants—the phenylenediamine-hindered phenol. They do recommend that you inject them very close to the source unit. Like I said, Pascagoula converted an MTBE plant and we had no instability issues at our plant. Corporate-wide, we actually have experience with two ion exchange resin-type catalyst units, two solid phosphoric acids distributed on solid support-type catalyst units, and we have experience with Dimersol-type units. We haven't experienced any instability problems in any of those. Some instability problems could come with feed contaminants that could lead to further gum formation. That would be diolefins or mercaptans, if they were in the feed, but those could both also be mitigated with antioxidants. So we use antioxidants in all of our units and haven't experienced any problems.

QUINTANA (Valero Energy Corporation)

Similar to Allen's response, we have several isooctene units in operation. They emerged from our MTBE phase-out strategy. We have some that have FCC BB feed stocks, as well as dehydrogenated feed stocks. We haven't had any issues with stability. We do inject the antioxidant immediately at the rundown point when it comes out of the cooling water exchanger. We monitor the stability with a stability test, such as ASTM 525, and adjust the dosage as needed based on the analytical result. Your chemical treatment vendor should be able to provide some new guidance on specific chemicals and dosage rates that are appropriate.

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