

Wednesday, July 18 – Panel Discussion Questions

Wednesday Panel Discussion with Chemical Company Representatives and Questions from Attendees Regarding Alternate Refrigerants

Chemical Company Representatives:

Minor	Barbara	DuPont Fluoroproducts
Spatz	Mark	Honeywell
Lindley	Andrew	Ineos Fluor Ltd
Low	Robert	Ineos Fluor Ltd
Jung	Dongsoo	Inha Univ [MK Chemical]

Question: Will we be here in 5 years discussing how to phase out these new blends (like R-134a)?

Question: Regarding FI-H, DP-1, JDH and AC-1, are there significant potential non-MAC applications for these chemicals that would enable/allow the chemical maker to assume more/earlier risk to volume production?

Question: Can R-152a be recycled and what is the cost range of the new refrigerants (DP1, H, JDH, AC1, CO2, 152a)?

Questions: How much additional wt. do you expect for an R-152a-dual-evaporator system with 2ndary loop due to water/glycol-fluid for the rear unit? What is the size of the necessary reservoir?

Questions: Who knows if these new low GWP substances have long-term effects on the environment? Who can guarantee that they don't? Is it reasonable to take risk using new substances when well known natural alternatives can be pursued?

Questions: Considering the short atmosphere life of some of the blends, is there any impact of air in recovery cylinders or improperly charged a/c systems?

Question: Is there a pass/fail total acid number globally agreed upon by experts of responsible industries?

Question: Does JDH contain the component that causes repeated dose issues in DP-1?

Question: To DuPont & Honeywell, on the basis of the available data for JDH, DP1 and Fluid H, what is your recommendation for OEMs which product should be selected?

Question: To DuPont, if you see issues on the reproductive biology with DP1, what do you expect from JDH?

Question: Responsibility for our environment seems to be your new buzzword. Why then develop a manmade (chemical) refrigerant knowing a natural refrigerant is available and ready for implementation?

Question: Assuming JDH is selected as the global refrigerant of choice; does the jt. cooperation between DuPont and Honeywell mean that the companies will represent one joint supply option to the industry?

Questions: Are H, DP1, JDH, and AC1 compatible with dye in a receiver/drier bottle? No chemical rx. over a range of composition level?

Question: What are the 3 major items you'd like to improve in JDH?

Question: If you compare the 3 proposed refrigerants, what is the best choice for the environment and the consumer?

Question: When will tox testing be complete and when will the CRP 150-1 report be out?

Questions: What is DME? What is the density of R430a at evaporating pressure (vapor side)?

Questions: What is DME in R429a and R430a? Is it a natural molecule?

Question: What is the latest decision time for Honeywell and DuPont to bring plants into production?

Questions: For Honeywell, is CF3i rated as a mutagenic substance? Chromosome alteration?

Question: When will DuPont publish the composition of DP1 so that gov'ts and the science community can discuss the environmental and health effects?

Question: The European Parliament and many gov'ts have been in favor of a GWP of 50 so will the composition of AC-1 be published?

Questions: Do DuPont and Honeywell have sufficient fluid JDH bench data to run the Green MAC spreadsheet? If yes, what are the results? If no, when will the data be available? Is fluid JDH being evaluated as part of the CRP 150?

Question: DP1, JDh and AC1 showed zero ODP. Is there any digit 0.0000000000?

Question: NDA is kind of a roadblock to share info among Tier 1's and OEM's in a collaborative effort. Any intention to lift up NDA so that it would accelerate collaboration?

Question: Is the flammability of R430a better or worse than R152a?

Questions: DuPont: Do you expect the same genomic issues (chronic exposure) as with DP1? Is the initial component in DP1 reused? Does JDH have any additives? What is the 2ndary GWP of breakdown products?

Questions: Who can assess the toxicity of the chemical? How long will it take?

Question: How do you know JDH would be better in terms of toxicity than H or DP1?

Question: USEPA said that CF3I has toxicity. Is it changed?

Question: Prof Jung: If you accept that the alternative refrigerant can be flammable, why not simply proceed with pure 152a? Why complicate the system?

Question: Why wasn't the repeated dose 90-day test performed, to date? There would have been enough time.

Questions: Why do we have to work on 4 different refrigerants? Cost of development and lubricant match refrigerants are very high. What will it take to agree on one refrigerant (GWP < 150) and best possible refrigerant and lubricant to reduce development time? Can we move at heightened speed w/o regulation/law?

Question: Any intention to collaborate INEOS findings with DuPont-Honeywell effort?

Question: Will current R134a dye (leak detector) be compatible to Fluid H w/o affecting performance if left in system? Same as for DP1 and JDH.

Question: For Honeywell & DuPont: Why do you introduce a 3rd refrigerant when you suggest that H and DP1 are good?

Question: Will Honeywell and DuPont focus on the development of JDH from now on?

Question: What is TFA decomposition product for AC1?

Questions: Prof Jung: You mentioned that HFCs will not be used after 2014 in new eqpt. Where did that come from? You also said no HFCs after Beijing Olympics. Where did that information come from?

Questions: Honeywell: Is it correct that the ODP of CF3I is up to 0.01 (last findings S&P Montreal Protocol) and that this is the same range of the ODP of banned substances? Is it correct that CF3I is classified as a dangerous substance under European regulations? Is CF3I flammable?

Questions: Is CO2 totally safe? How can we reduce the risk of the extremely high pressure in the system? For example, causing a high-pressure refrigerant oil mist causing a motor compartment fire in an accident or hose failure?

Question: Is the COP improvement at idle significantly higher than at 2000 RPM for DP1? Does DP1 COP further decrease at higher RPM?

Question: The OEMs in Europe have to decide what will be the new refrigerant in 5-8 months time. Is your chemical company prepared to complete all internal testing and decision-making processes so that you can make the business decision to go ahead to be production ready by 2010/11 within this same timeframe?

Question: (Honeywell) Have the commercial issues such as containment, reliability, durability and service, and cost been resolved? If they are, is CO2 system ready for 2011?

Question: (Honeywell) What's the application where the R-134a compressor is operated with a discharge pressure of 40 bar?

Question: (Honeywell) You said that CO₂ has no indirect GWP. What is your definition of indirect GWP? Most people would understand that indirect GWP mainly refers to the energy required to drive the a/c system.

Question: Weren't the 90 day tests of R-134a free of any concern, so doesn't this DP-1 result raise to much an issue to continue?