

Issue: Shanghai Benzene Study

Issue description: The Shanghai Benzene Study is a multi-stakeholder health study that aims to better define the hazards and health risks from exposure to benzene. As the world's second largest producer of benzene, Shell Chemical LP (Shell) has contributed \$4 million to the study.

Key messages:

- Shell is contributing to a study in Shanghai that aims to better understand the potential health risks from exposure to benzene. Our support for this study is as part of the company's ongoing commitment to health, safety and product stewardship.
- We are committed to better understanding the relationship between benzene exposure and health so we can protect the health of our workers, contractors, customers and those who may come into contact with benzene.
- The study is wholly independent of Shell. It is run by Fudan University in Shanghai, the University of Colorado Health Services Centre and Applied Health Sciences, an independent research firm in San Francisco. The research is being overseen by a scientific and ethics review panel composed of 14 world-renowned independent experts in the field.
- The results of the study will be peer-reviewed and published by the researchers in scientific journals, currently scheduled for 2008.

Supporting Messages:

- The study, which began in 2001, was designed by independent epidemiological and toxicological investigators. The research protocols and the research itself are being overseen by a scientific and ethics review panel composed of 14 world-renowned, independent experts in the field. The research protocols also have been approved by independent review boards at Fudan University, the University of Colorado and Applied Health Sciences.
- The independent investigators conducting the study have full control over all interpretations and conclusions that may be drawn from the data when the study is completed, which is currently scheduled for 2008. Upon completion, the findings of the study will be peer-reviewed and published by the researchers in scientific journals.
- A consortium of petroleum and chemical companies (the Benzene Health Research Consortium) funds this independent study. The consortium is administered by the American Petroleum Institute (API) and consists of BP, ChevronTexaco, ConocoPhillips, ExxonMobil and Shell Chemical LP. Shell has committed \$4.7m to the \$26m study.
-

- A state-of-the-art clinical and molecular laboratory has been built on the Fudan Medical University campus to support the research project.
- The project includes three studies:
 - case control study on acute myelogenous leukemia (AML) and non-Hodgkin's lymphoma (NHL);
 - study on aplastic anemia (AA), myelodysplastic syndrome (MDS), acute myelogenous leukemia (AML), and benzene poisoning disease progression; and
 - Molecular epidemiology study of benzene exposed workers. The study will analyze benzene's effects on the blood and bone marrow, and its ability to cause cancer in workers.

Issue Sensitivity

- In April 2005, the Shanghai Benzene Study identified a new health effect from high level, long-term exposure to benzene – myelodysplastic syndrome (MDS). As per section 8 (e) of the Toxic Substances Control Act (TSCA), Shell in the US communicated this information to the Environmental Protection Agency (EPA) and revised the benzene Material Safety Data Sheet (MSDS) to this effect.
- Also in April 2005, the Houston Chronicle (a US newspaper) published an article alleging that the Shanghai Benzene study was biased because of funding from multi-national oil companies, including Shell. The newspaper incorrectly claimed that results of the study had already been determined, and oil company sponsors would ensure that the results 'contradicted cancer claims'. There have been no follow-up articles since April 2005.
- The benzene business faces challenges regarding:
 - Concern by local communities and NGOs about product health issues (which is high as benzene is classified as a human carcinogen); and
 - Potential regulatory reviews of exposure levels. Regulators are particularly concerned about the impact of air pollution on health at present, and are keen to reduce exposure to chemicals such as benzene.
- There is a correlation between high levels of benzene exposure and acute myeloid leukaemia. The precise link between exposure and disease is not understood yet. There is disagreement in the scientific community about what level and what length of time a person has to be exposed to significantly increase that person's risk of developing cancer. Certain scientific studies have recently been published that allege exposure to benzene below accepted regulatory levels can cause adverse health effects:
 - In December 2004, a paper published in Science reported that benzene had toxic effects on blood cells at 1 part per million, the level workers in the United States are allowed to be exposed to over an eight-hour work day.
 - In August 2004, a study by the French National Institute of Health and Medical Research (published in Occupational and Environmental Medicine) reported that children living close to a petrol station were four times more likely to develop leukaemia.

- In 1997, research conducted by the National Cancer Institute in Shanghai reported that workers exposed to average levels of benzene were four times more likely to develop non-Hodgkin's lymphoma than the general population.

Questions/Allegations and Responses

Q. Isn't Shell funding this study to rebut claims that exposure to benzene causes cancer?

- A. No. Shell is providing funding to this study because we are committed to better understanding the relationship between benzene exposure and health in order to protect industry workers and customers.

Q. Surely the findings will be biased as the study is industry-funded?

- A. No. The study is independent, and is being led by the Fudan University Medical Centre in Shanghai, the University of Colorado Health Services Centre and Applied Health Sciences, an independent research firm in San Francisco. The research is also being overseen by a scientific and ethics review panel composed of 14 world-renowned independent experts in the field.

Q. If the study shows a causal relationships between benzene and human health, what compensation will Shell pay to people affected by benzene?

- A. This question is highly speculative and it is also too vague to accurately address potential claims that would ultimately depend on individual circumstances.

Background information

- Shell is the world's second largest benzene producer (after Exxon Mobil). Benzene is manufactured at ten sites globally: Sarnia, Canada; Gendorf, Germany; Heide, Germany; Wesseling, Germany; Yokkaichi, Japan; Yamaguchi, Japan; Kawasaki, Japan; SASREF, Saudi Arabia; Jurong Island (Merbau) PCS, Singapore; and Deer Park, the United States.
- Benzene is a very important basic chemical, being converted into many of the intermediates and polymers that are needed to produce a wide range of the goods we all use everyday. Familiar products that may be made from chemicals derived from benzene include clothing, packaging, paints, adhesives, unbreakable windows, plywood, computer casings and compact discs.
- An additional related effort currently underway within Shell is to determine a global standard or occupational exposure limit (OEL) for benzene across the entire company. The OEL for benzene globally ranges from 0.5 – 10 part per million (ppm), with 1 ppm being used across most of the world. After the study is completed, a decision will be made and the new OEL will be communicated on a Group-wide basis to key stakeholders.