



Doubt as a strategy of influence The benzene case

In 1948, after taking note of a study made by a professor from The University of Harvard, the American Petroleum Institute (API) (1) was aware of the dangers of benzene. The verdict was clear: “the only safe level concentration of benzene for a person exposed is nil” (2). Yet, benzene is found in fuels, plastic, pesticides, cigarettes, perfumes, medicine manufacturing... and thousands of workers are exposed on a daily basis. Thus, it would be extremely costly for manufacturers to totally eradicate its use.

The API implemented several actions for a few decades, in order to counter benzene controls or prohibition attempts. As a response to scientific arguments from opponents, the lobby adopted several strategies whose aim is to foster doubt and thus to neutralise, and even discredit opposing opinions. Those actions were finally reported in December 2014, when the Centre for Public Integrity (CPI) (3) published a document with more than 20,000 pages (mails, memos, testimonies, etc.) regarding this case and entailing health, economical and moral issues.

Analysing the benzene case allows us to comprehend the logistics of corporate influences. Primarily, this case enables us to see how stakeholders utilize information in order to promote their interests, discredit their opponents, and simultaneously construct media, scientific and political environments, which cater to their own benefits. These logistics have existed for more than 60 years. Indeed, nowadays, benzene is one of the most manufactured chemical products, both in the United States and worldwide.

Benzene and doubt fabrication

To face anti-benzene arguments and to find the better answer to more and more organised and influential opponents (4), the American Petroleum Institute developed and implemented several actions in order to reduce criticisms, and even to prevent them. Thus, whereas they usually preferred to ignore attacks or choose to respond with legal actions (when they were too vehement), the API understood that its strategy had to be completed with another tactic: create a scientific knowledge base that would serve its interests, and help to legitimize the production of benzene.

A groping strategy in the 20th century

The American Petroleum Institute successively ignored the controversy, then tried to fight it before the courts, which in the end, resulted in engagement of self-appointed embryonic counter-arguments, mostly in response to opponents' arguments.



An ignored controversy until 1977

The first criticisms regarding benzene appeared in 1897, when a study carried out in Sweden, showed that benzene is a poison (5). In 1926 and 1928, other researchers confirmed the link between benzene exposure and white blood cell destruction, along with an increased risk of leukaemia. In the United States, the first restrictions appeared in 1946, with a minimal level of 100 parts per million (ppm). In 1948, this level lowered to 35, whereas the API insisted that 50 ppm remained acceptable.

In 1950, a consultant from the oil company Shell (API's member), reported in a memo that benzene is a very "well known carcinogenic", adding that the company's employees were beginning to question more and more the potential for cancer risks. Yet, no measures were taken: whether to inform workers about potential danger or reconsider agreed upon scientific debate. Indeed, the American Petroleum Institute seemed to prefer to ignore the problem despite health issue reports multiplying in the 1950's and 1960's.

For example, in 1964, two Italian researchers, Enrico Vigliani and Giulio Saita (6), conducted a study on "highly exposed to benzene" workers in Milano and Padua factories. They concluded that workers' risk to develop leukaemia was 20-times higher than normal. In 1967, a study made by Anne-Françoise Goguel (7) in Parisian Region, demonstrated that an abnormally high incidence of leukaemia was correlated with benzene exposure. However, none of those reports proposed any restrictive threshold regarding a minimum tolerable benzene level.

1977 - 1987: first opposition between pro and anti-benzene

In 1977, Peter Infante, member of the National Institute for Occupational Safety and Health (NIOSH) (8), published a study for the Goodyear factory in Ohio (9). He made the statement that workers exposed to a 10 ppm level of benzene – which was then the authorised exposure limit – had an increased risk of cancer. As a response, the Occupational Safety and Health Administration (OSHA) (10) temporally decreased the limit to 1 ppm. One year later, this limit became permanent, provoking a first reaction from the API.

Indeed, for petrochemical industrial operators, lowering authorised exposure limit had an obvious negative impact, notably costly procedures for upgrading to the new standards. The API implemented judicial proceedings and after two years of investigations, the US Supreme Court invalidated the OSHA decision.

This was followed by many years of new procedures, unfortunately non-conclusive, in order to highlight the health risks of benzene exposure. Yet, in 1987, a petition from trade Unions workers, calling for OSHA to protect them against benzene's negative effects, led to the American organisation opting to renew its previous recommendation for a 1 ppm level standard. The Supreme Court ratified then, in 1987, the authorised limit level to 1 ppm (11). However, the industry succeed in postponing the completion date to ten years, a delay that would have caused the exposure-related death of more than 200 people in the United States alone (12).



This legal battle, marked by the court's doubts and the OSHA's contradictions, highlights perfectly the opposition between manufacturers and health authorities about scientific uncertainty (13). By criticising hostile viewpoints and then encouraging the generation of favourable scientific literature, the API tried to construct a climate of suspicion and uncertainty regarding benzene's negative health effects. This strategy was partially implemented in the 1990's.

Discrediting adverse viewpoints: a 1990's nascent strategy

In 1990, the American Petroleum Institute understood the limits of its stance, which consisted in ignoring signals and delaying court decisions. The API then, decided to develop a shared research program whose aim, as reported in an internal memo, was to "improve risk evaluation and influence regulations". In other words, to monitor and block some works that would prejudice their interests.

In 1995, the National Cancer Institute (14) conducted a study regarding OSHA's maximal authorised benzene exposure levels and their associated dangers. However, if this study had proven that the 1 ppm level was risky, it would generate a standard re-evaluation procedure and consequently, additional costs for manufacturers. Results were finally published in 1997 and not only confirmed an increased risk in contracting leukaemia, but also other diseases.

The API promptly reacted and offered 25,000 dollars to Otto Wong (15), a Californian epidemiologist (16), to conduct a "critical analysis" of the study. In a 10-page report, the scientist denounced several incoherencies and approximations, assuring that conclusions were "thinly reliable" (17). Thus, Otto Wong's analysis cast a sufficient amount of doubt, regarding the National Cancer Institute's study and it was therefore not taken seriously by the USA Environmental Protection Agency. As Bob Sonawane, then Director of the agency stated, "we thought that some methodological problems could be disputable".

However, if Otto Wong's criticisms could be sufficient, they still were only a short-term solution. Indeed, the API essentially reacts to its opponents' attacks, permanently trying to justify itself. Yet, the API objective is now to fuel doubts in the long term, in other words to exploit in such a way the scientific debate, by favouring emerging studies that challenge health organisations.

2000's goals: encourage an emerging scientific "counter-culture"

In 1999, the American Petroleum Institute decided to make a similar study to the National Cancer Institute's one – not in the United States, but in China, about Shanghai labourers – that would serve as a scientific base in order to counter its opponents.

Conducting the study, fixing expected results

In order to carry out this study, the API asked Otto Wong and Richard Irons (18), two researchers who had also worked on the study. The API had previously funded Richard Irons since the beginning of the 1990's (19). In supplement to this period of time, the



American Chemistry Council, a powerful industry lobby, offered him a one-hundred thousand dollar contract for a “small project about benzene”.

In order to coordinate this study which was supposed to be conducted over five years, with a cost of approximately 19-million dollars, in 2001 the API created the Benzene Health Research Consortium (20). The API unanimously determined three goals to be reached before the study:

1. “To provide a scientific support to the idea that a 1 ppm level rate of exposure to benzene doesn’t entail any risk of leukaemia”
2. “To prove that the exposure authorised limit doesn’t constitute any significant risk”
3. “To refute allegations that benzene could provoke other cancers than leukaemia”

Finally, in order to counteract any criticisms regarding scientific integrity and suspicion risks, the Consortium tried to lend the most credibility they could to the study.

Giving a larger credibility to the study to use it more efficiently

By financing its own project, the Consortium had to face two challenges: hide its real motivations and let people think the scientists’ works were carried out independently. Regarding the first issue, Consortium’s members agreed on the specific language to use. Resultantly, an inventory of responses was provided for each potential question on the subject matter of study. Officially, for the public, this study had been made in order to “understand the dangers of manufactured and sold products”. Unofficially, the Consortium’s members would rather be concerned about “labourer’s benzene exposure and moreover, claims for compensation risks”.

Regarding the independence of the study, one of the involved corporate representatives wrote in an email that “some would try to criticise or to misinterpret the study, it is then important that integrity should be maintained”. In order to insure this integrity, the Consortium created several committees, made up of independent experts, in charge of supervising research works. According to Jerry Rice, head of the scientific committee and former member of the National Cancer Institute, “it was essentially more like a quality control”.

Thus, this organisation is questionable, notably regarding researchers and the integrity of the scientific committee’s members, along with their ethical points of view. However, the Centre for Public Integrity, who revealed Benzene Health Research Consortium’s role, doesn’t suspect any cases of corruption. Moreover, the Consortium claimed that the committees’ independency is demonstrated by the fact that their proposals were taken into account and that it involved a 3-million dollars budgetary increase over the duration of one year.

Today, as a matter of fact, Jerry Rice, assures “not having tried to muzzle or ease criticisms from instigators”. Nevertheless, the study remains subject to the Benzene Health Research



Consortium stakeholders' review. Each year, scientists, examiners, and instigating corporate managers assemble for two-days in order to discuss works-in-progress, whereas the consortium members receive the reports every 6 months.

Reduce threats and avoid polemics

In 2009, after eight years of research and a final budget of 35-million dollars, the Shanghai study submitted its conclusions. It was definitely proven that Benzene exposure induced development of cancers, but only certain types. This last point is important as it underlines the API's strategy: to concede proven facts (21) in order to preserve what can be preserved. Thus, if the study specified the types of cancers caused by benzene, it became a precious argument in order to clear manufacturers and prevent them from some legal proceedings. In fact, the study subdivided as many possible types of cancer as possible, making some statistically too insignificant to be related to benzene. It generated doubt, which happened to be the key strategy during poisoning trials.

For instance, files provided by the Centre for Public Integrity reported the case of a worker who had developed a very rare type of cancer. The defence counsel mentioned the absence of this type of cancer in the Shanghai study in order to disqualify the accusation. The manufacturer being charged had been given a certain advantage, by arranging a confidential agreement with the victim's family and ending the accusations. In the Centre for Public Integrity's investigation, four other similar cases were reported. In fact, those secret agreements don't only allow manufacturers to avoid resounding and destructive proceedings (due to non-disclosure agreements). They also prevent other potential victims from complaining as well.

1977 - 2014: what review?

In 1977, the authorised benzene exposure limit went from 10 to 1 ppm. Although temporary, this limit had finally been recorded in 1987. Yet, during this period of time, the petrochemical lobbyists couldn't defend themselves on a scientific level. Consequently, the American Petroleum Institute developed a new strategy allowing its members to have more than thirty scientific publications defending their interests and countering accusations.

By encouraging an "information counter-offer", minimizing most of benzene effects, the API fulfilled its purpose of weakening the scientific bases, which was the main target of the attacks. Celeste Monforton, a doctor in public health from the University of George Washington, cynically summarized the situation: "the Shanghai study is the most elaborated and costly effort ever made in order to try to invalidate prejudicial scientific evidences".



An orchestrated and generalised doubt?

Doubt is the more commonly used strategy of influence over time. The tactic consists in bringing the targeted public to question itself, in other words to get out of its habitual thought patterns and to recalibrate its stance regarding the issue at hand. This strategy is still highly relevant.

To produce and orchestrate doubt: a strategy in no way peculiar

The benzene case demonstrates manufacturers' ability to construct their environments through efficient counter-arguments, based on a solid scientific base (although their elaboration is questionable). Thus, the results speak for themselves; benzene production is still authorized, proceedings are minimized and opponents durably weakened (their arguments are no longer heard).

However, this strategy isn't particularly abnormal. It has been used before by tobacco and asbestos manufacturers, with contrasting results. In France, the Asbestos Permanent Committee (CPA) (22), (created in 1982 on the French asbestos manufacturers association's initiative), managed prior to its disbanding, to drive the French health policy: via entryism and political lobbying but also through favourable epidemiological studies. This unofficial group, without particular status, had even succeeded in obstructing European resolutions aiming at banning asbestos. Tobacco manufacturers' strategies are enlightening examples as well (23), similar to hydraulic fracturing ('fracking') debates currently taking place in the United States and in other countries (24).

Create doubt in order to influence

In our society, doubt is seen as pejorative. However, it can be essential and positive. The definition of the term to doubt is clear: to be unsure about something's authenticity, its reality, its truth. Therefore, it involves thinking to reach this truth. But raising doubts? In this case, anyone who tries to cast doubts looks for people to believe his/her truth, or his/her perception. Yet, those can be sincere or dishonest. Doubt can thus be manipulative, which is the opposite of the goal of making people think (a positive outlook aiming at enhancing one's knowledge or awareness).

Casting doubts enable the influence of people, their thoughts and therefore, their actions. The Greek philosopher Pythagoras said "when in doubt, don't". According to Alain Juillet, a former high representative for competitive intelligence, "influence is a means with which to bring people to the consideration of changing their point of view (...) to persuade the one we are trying to influence into changing his/her paradigm of thinking, or to modify his/her basis of understanding (...) Influence consists in bringing his/her listener to get out of his/her thinking patterns towards others. This change of perception is generated by newly presented elements that encourage anyone to think differently (...) because influence coaxes people to analyse, sort out his/her usual ideas and then recalibrate their validity. Any strong argument can lead people to change their judgment and so, their stance. This is when the influence process begins" (25).



Thus, whoever produces information – the pitch – and communicates it, has a certain advantage to provide a framework for other recipients' thoughts.

A widespread doubt?

Available digital tools today allow stakeholders (States, Companies and individuals) to spread high-quality analysis or intentionally oriented and biased contents – even hoaxes – in order to promote their point of view and so, their vested interests. The contemporary context is then a world of balance of information power where anyone tries to impose his/her vision: not in an authoritarian manner, but through influence fostering doubt among the key players. For instance, it could be observed in the diplomatic arena (like the Russian/Ukrainian conflict) (26), politically, between candidates for election for example or also, in the competitive field (as the *bad buzz* on non-halal McDonald's in Muslim countries) (27).

Furthermore, beyond this flow of arguments, the new information environment shows an evolution of stakeholders to be influenced. Thus, whereas the American Petroleum Institute, tobacco manufacturers or asbestos businesses focus on political leaders, it is necessary to take into account the civil society whom opinion and capacity of action, (now eased thanks to Internet) can orient political policies. For example, the hydraulic fracturing is an illuminating subject in this regard. Industrialists in the 'Fracking' sector don't try to convince the legislator more than the citizens in areas of exploration-production, where reluctance regarding shale gas is the strongest.

Conclusion

The American Petroleum Institute's strategy during the past several decades has highlighted big organisations' key practices of influence in order to minimise any negative discourse, the utilization of counteracting trials and the reinforcement of their stance towards competitive products or ultimately, binding legislations. Moreover, this strategy is based on orchestrated doubt, which is not unusual, regardless of the era, country or specific issue (health, economic, etc.).

However, with Internet development, this type of strategy has continued to evolve. An evolution has taken place, which allows individuals and organisations, regardless of size, to promote their arguments. Digitalization has redefined everyone's stance, as information creation and immediate broadcasting are not confined to big organisations or authoritative people anymore.

Hence, any individual is not only an information consumer but also a producer (some would say a knowledge producer): he/she is a target, a channel of influence and an influencer. Former authoritative people or organisations, thanks to their knowledge, are gradually increasing in their legitimacy to become competition with other traditional information sources.

However, it is not ever easy to assert ourselves as merely the reference, in our environment. It can only be achieved in the long term, as stakeholders' habitual patterns



of thought cannot change overnight. Therefore, the Internet induces the emergence of a world where doubt is generalised and where it is necessary to learn again how to filter through that doubt, in order to search for the (one) truth.

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Spin Partners

55, rue du faubourg Montmartre - 75009 Paris
Phone: + 33 1 40 16 07 07 - Fax: + 33 1 48 74 43 38
Email: info@spinpartners.fr – Site: www.spinpartners.fr

Notes and sources

- (1) Designated as a standardization body, the API is the most important petrochemicals lobby in the United States, spending each year millions of dollars to defend its interests. The Centre for Responsive Politics, American Petroleum Institute, analysis notes updated in February 2015.
<https://www.opensecrets.org/lobby/firmsum.php?id=D000031493&year=2014>
- (2) American Petroleum Institute (Department of Safety), *API Toxicological Review on Benzene*, Harvard School of Public Health, September 1948. A study made by the professor Marshall Clinton.
- (3) Based in Washington, the Centre for Public Integrity is a investigative journalists non profitable organisation, founded in 1989: <http://www.publicintegrity.org/>
The documents obtained by the CPI are the result of an investigative work made with researchers from Columbia University and City University of New York.
- (4) Romain Loury, « Benzène : la fabrique du doute au grand jour », *Le journal de l'environnement*, 5th December 2014.
- (5) The American law firm Hissey Kientz proposes a chronology of the benzene: <http://bit.ly/1zfCPQ2>
- (6) Enrico Vigliani and Giulio Saita, « Benzene and Leukemia », *The New England Journal of Medicine*, 22nd October 1964.
- (7) Anne-Françoise Goguel is a French researcher specialised in cancer.
- (8) The NIOSH, National Institute for Occupational Safety and Health is a federal American agency.
- (9) Peter Infante and Alii, « Leukemia in benzene workers », *The Lancet*, Volume 310, n° 8028, July 1977.
- (10) L'OSHA, Occupational Safety and Health Administration, agency under the Ministry of Labour.
- (11) William N. Rom and Steven Markowitz, *Environmental And Occupational Medicine*, Lippincott Williams & Wilkins, 4th edition, May 2006, page 1652.
- (12) Ilise Feitshans, « Law and Regulation of Benzene », *Environmental Health Perspectives*, Vol. 82, pp. 299-307, 1989.
- (13) Kristen Lombardi, « Benzene and worker cancers: 'An American tragedy' », *The Center for Public Integrity*, 4th December 2014. Unless otherwise specified, all the following quotes are collected from this survey.
- (14) The National Cancer Institute is a federal American institute created in 1937.
- (15) A that time, Otto Wong is well known in petrochemicals industries for having conducted several studies against them. Before 1987, while he was a researcher for the company Environmental Health Associates, he denounced benzene overexposure. In 1991, in a survey regarding vinyle chloride impacts on health, he severely criticized petrochemical industry.... Before withdrawing and going back on his most serious conclusions. In their book *Deceit and denial: the deadly politics of industrial pollution*, David Rosner and Gerald Markowitz, two public health specialists and professors, refer it as “one of the most curious self-correction cases”,



suggesting the researcher must have been submitted to heavy pressures to withdraw his claims.

Otto Wong, « An industry wide mortality study of chemical workers occupationally exposed to benzene », *British Journal of Industrial Medicine*, n°44, pp. 382-395, 1987.

Otto Wong and Donald Whorton, « An industry-wide epidemiologic study of vinyl chloride workers, 1942–1982 », *American Journal of Industrial Medicine*, Vol. 20, Issue 3, pp. 317–334, 1991.

- (16) Otto Wong is chief epidemiologist for the company Applied Health Sciences, Inc., based in San Mateo. He's also professor the universities of New Orleans and Hong Kong.
- (17) Otto Wong, « A critique of the exposure assessment in the epidemiologic study of benzene-exposed workers in China conducted by the Chinese Academy of Preventive Medicine and the US National Cancer Institute », *Regulatory Toxicology and Pharmacology*, Vol. 30, Issue 3, December 1999.
- (18) Richard Irons, professor of toxicology at the University of Colorado, wrote several articles on benzene and its health issues.
- (19) Notably this study: Richard Irons and Wayne Stillman, « The effects of benzene and other leukemogenic agents on hematopoietic stem and progenitor cell differentiation », *European Journal of Haematology*, n° 60, 1996.
- (20) The Consortium is financed by Shell, ExxonMobil, Chevron, ConocoPhillips and BP. Dow Chemical, however API's members, refused to participate, fearing that the survey might be flawed.
- (21) A second study conducted in 2004 by the National Cancer Institute had already established a link between benzene exposure and cancer development risks, and this even for a level lower than 1 ppm.
- (22) The Asbestos Permanent Committee, in addition to the manufacturers, had scientists, high-ranking officials of Ministries (Labour, Health, Environment), unionists or public organisations' (including social security) representatives, as members. The communication and lobbying agency, CES, led by Marcel Valtat was a member as well.
- (23) Naomi Oreskes and Erik M. Conway, *Les Marchands de doute : ou comment une poignée de scientifiques ont masqué la vérité sur des enjeux de société tels que le tabagisme et le réchauffement climatique*, Editions Le Pommier, 2012.
- (24) Richard Schiffman, « 'Frackademia': how Big Gas bought research on hydraulic fracturing », *The Guardian*, 9 January 2013.
- (25) Comes Communication, « Stratégies d'influence, le décryptage d'Alain Juillet », *Communication & Influence*, special edition n°1, June 2009.
- (26) Benoît Vitkine, « Ukraine : rumeurs, manipulations et guerre de l'information à Sloviansk », *Le Monde*, 20th April 2014.
- (27) Al Kanz, 'McDonald's non halal' : haro sur le bad buzz en Malaisie, 16th September 2013.