

Utrecht, April 8, 2007

To the British participants in
project activities related to
Process Intensification (PI).

Dear Sirs,

In this letter we explain the Action Plan PI as set up by a Dutch taskforce, called Action Group PI. The plan has been discussed with senior management of leading Dutch companies and with technical experts in the field of PI. The plan is directed at speeding up the commercial introduction of promising PI technologies. Its realization will lead to substantial reduction in energy consumption, CO₂ emission and cost.

Please feel free to use this information at your discretion to communicate with British stakeholders in the field of PI.

The Action Plan, its background and impact.

Recently, acceleration can be observed worldwide in the development of innovative process technologies referred to as Process Intensification or PI. These technologies often combine known unit operations in an innovative fashion, sometimes using novel equipment or processing methods, such as advanced distillation, micro reactors, alternative energy forms, etc. Recent developments in energy and climate support the need for faster and broader application of the innovative PI-technologies.

The present Action Plan consists of three elements:

- 1) Create an up-to-date and well accessible picture of the worldwide available positions in science and technology for PI (“facts and figures”). *This activity will be executed by the Action Group PI in cooperation with worldwide PI experts in Q2 and Q3 2007.*
- 2) Select the PI technologies with real promise for the process industry. Opportunities based on business goals will be described, their possible effects estimated and action suggested in a Roadmap. *This activity will bring focus in the roadmap and will be steered by the Action Group PI using leading expert opinions, Quick Scans, and Workshops. This second step will require intensive interaction with the industry. It is planned for Q3 and Q4 2007.*
- 3) Promote actual commercial application by organizing/brokering action in the industry. Often cooperation between potential users, equipment and technology suppliers will be necessary to realize certain developments. In some cases this can be supported by (partial) public funding. *This will be the most important result of the PI project, to be*

executed the second half of 2007 and further in 2008. The Action Group PI will point out options for certain application to companies, suggest cooperation between relevant players (specifically in such cases where further technology development is still needed) and will help to organize such cooperation. The Action Group PI thereby has the role of promoter/broker.

The eventual execution of the development activities and investments, in cooperation or by individual companies, will be the responsibility of the industry itself, possibly with support of public funding. Technology providers, including Universities, will often be partners in such cooperation.

The power of this approach is created by bringing together the available PI expertise on the one hand and the needs of companies on the other hand. Individual companies and company departments often do not have sufficient insight in the options PI is already offering and therefore do not act or act later than necessary.

The design of the Action Plan is aimed at maximizing the number of useful and profitable introductions of PI Technologies in the Dutch and European process industry.

Support from the Industry.

A preliminary study in 2006 by experts from Dutch industry and universities has shown that the use of PI can reduce the energy consumption and CO₂ emission of the process industry by more than 20%, often by more than 50%. Operational cost will decrease accordingly. Also safety, quality and other relevant factors can be improved. The Action plan as presented here has been communicated to responsible management of leading Dutch companies (AKZO, DMV, DOW, DSM, ECN, Huntsman, Rohm and Haas, Shell, Unipol Holland, Zeton) and with branch organizations (VNCI, MKB) and has received full support. A Senior Advisory Board has been formed with executive managers from industry and universities to lend support and guidance.

We expect that financing will be arranged soon (partly industry and technology suppliers, partly government).

International context

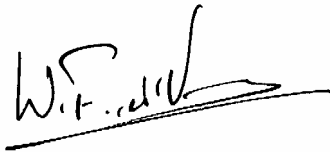
The Dutch industry will not always be able to, or be prepared to carry out development or investment projects without involving international partners with relevant expertise or business interest. The project therefore requires an international dimension. In first line we have contacted German branch organizations and industry with a proposal to cooperate. Possibly, other international cooperation will be added in the future. Support to our activities has been expressed by the European Federation of Chemical Engineering and some national organizations, e.g. Polish Chamber of Chemical Industry.

Dutch Government policy

The Dutch Government has initiated a broad so called Energy Initiative of which the PI Action Plan is a part. This Energy Initiative has been organized in close cooperation with industry as a Public/Private Partnership, as is the PI Action Plan.

We hope a fruitful cooperation between relevant stakeholders can be achieved. This will certainly benefit our process industries and the larger objective of protecting our energy situation and our climate.

Kind regards,

A handwritten signature in black ink, appearing to read 'W. de Vries', written over a horizontal line.

Willem de Vries,
Secretary Action Group PI