

## Kathar Cleaning offers great advantages

A Kathar cleaning operation pays back in terms of increased throughput, lower transmission costs, less nuisance and reduction on costs of repetitive cleaning and inspection runs.

The advantages are numerous:

- improvement of product quality, e.g. gas, fuel or crude oil
- increase of pipeline efficiency
- reduction of unexpected and unplanned maintenance costs
- improvement of effectiveness of corrosion inhibitors
- prevention of further pipeline degradation
- reduction of pipe wall friction
- improvement of quality and reliability of inspection data

The use of hydrocarbon-based cleaning agents relieves the necessity of drying operations since no water is introduced into the pipeline! The Kathar liquids leave a harmless microfilm on the pipe wall which acts as a retardant for future contamination and reduces friction for product and future scraper runs. Kathar cleaned lines have proven to show very smooth runs of inspection tools, which obtained excellent measurements!

## Turnkey Services

Pipesurvey International offers complete customer service. It will conduct the operation from sample analysis to waste disposal. Prior to each operation, Pipesurvey International will hold a pre-cleaning meeting, to determine the customers' objective of the operation, operational, safety and environmental procedures, the time frame and the mutual responsibilities. For each job, Pipesurvey International mobilizes a complete team of field engineers with all the required equipment and spares, so as to complete the job within the specified time frame. The company complies with all international standards with regard to quality and safety and guarantees the level of service that you want to depend upon.

# KATHAR<sup>®</sup> PIPELINE CLEANING



**Pipesurvey International C.V.**  
**Schrijnwerkersstraat 13**  
**P.O.Box 117, 3330 AC Zwijndrecht**  
**the Netherlands**

**Tel + 31 78 610 1428**  
**Fax + 31 78 610 2128**  
**info@pipesurveyinternational.com**  
**www.pipesurveyinternational.com**



# Why Pipesurvey International?

Pipesurvey International is an internationally operating service company for the pipeline industry. The company was raised to meet with a growing demand of latest technology cleaning and inspection services.

Being relatively new and dynamic, its personnel can boast on decades of experience in pipeline pigging. Pipesurvey International employs a team of highly qualified experts on the field of pig design, chemistry, corrosion control, and in-line operation of pressurized pipelines. Pipesurvey International has the expertise to handle complex operations on a turn-key basis; it offers unbeatable quality of service and technology against competitive terms.



## How contaminations affect your pipeline

Pipelines are pigged for several purposes, such as increasing pipeline efficiency, removal of debris, removal of condensates, corrosion prevention, preparation for commissioning or inspection and pipeline conversion. In many cases, pigs will encounter contaminations which can be classified as corrosion by-products, scales, black powder, compressor oils, asphaltenics, paraffin and waxes, biomass, moisture, down-hole products or construction left-overs. Pipeline contaminations affect safe and healthy pipeline operation in the way that they:

- create an ideal environment for oxygen to react with pipeline steel
- accumulate in corrosion spots and mask metal loss to corrosion inspection pigs
- cause sensor lift-off, speed excursions or other malfunction which creates data-loss or generation of spurious data from expensive inspection operations
- cause plugging fouling or damage of downstream equipment such as turbine blades filters and compressors
- will cause degradation of the pipeline product, to such an extent that operators may face claims from end-users
- lead to increased costs due to damaged facilities, stuck cleaning or inspection tools, down-time, remedial work,
- interfere with effectiveness of corrosion inhibitors or flow improvers
- increase surface roughness and thus significantly reduce pipeline efficiency

Moreover, these pipeline contaminations often

prove to be very stubborn and hard to remove by pigs alone. Fortunately, Pipesurvey International offers advanced cleaning technology to overcome such difficulties, where pigs alone fail.

## Kathar® Cleaning

Kathar Cleaning is an operation where the action of specially designed cleaning agents is combined with the mechanical agitation of cleaning pigs.

Kathar cleaning liquids are based on unique chemistry. The products are a blend of specially developed surfactants, dispersants and wetting agents. Kathar cleaning agents can be applied on a basis of water or hydrocarbons.

Kathar cleaning agents will:

- penetrate even dehydrated contaminations and lift them off the surface
- change the surface properties and create a stable dispersion
- facilitate the removal of the contaminations by means of pigs

Kathar cleaning agents are environmentally friendly, biodegradable liquids; they are not based on solvents or acids and have no adverse effect on line steel, gaskets or internal coatings. They are safe to handle and easy to dispose of which offers great cost savings.

Kathar cleaning agents are combined with a selected choice of pipeline pigs at each stage of the cleaning operation to obtain the maximum result.

Pipesurvey International performs the cleaning operation with full batches of cleaning liquids between two pigs, in order to guarantee complete

coverage of the pipe wall. This technique has proven to be more efficient than the technique of a batch with one trail pig only. Kathar Cleaning operations can be applied for the removal of wax growth, black powder, loosely adhered scale and many other contaminations. Kathar cleaning is done before pipeline inspection, commissioning or abandonment.

## A pipeline cleaning operation

Kathar Cleaning operations can be performed in either in-line or off-line mode. In the latter case, the pipeline is out of operation and compressed air is used to propel the batches.

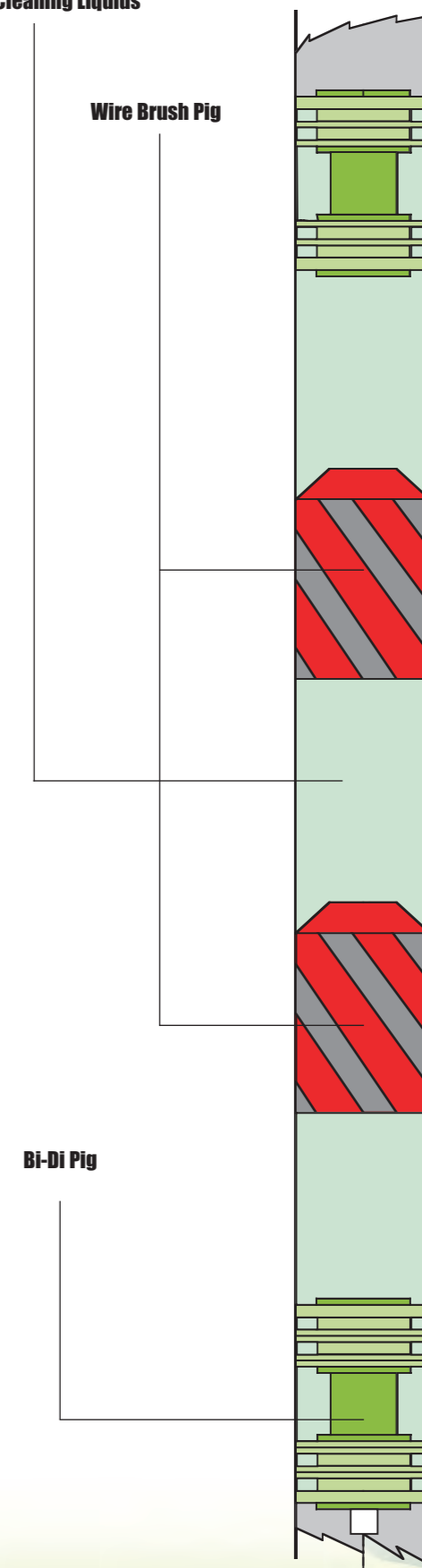
In the in-line mode, Pipesurvey International mobilizes and operates pressure equipment in order to perform the cleaning with a minimal interference to the regular pipeline operation, which again offers great cost savings to the operator. Pipeline cleaning is recognized to be a complex operation. Pipesurvey International discerns four phases:

- Preparation phase: design the cleaning program based on pipeline characteristics, operational restrictions, selection of cleaning pigs and cleaning agents, analysis of pipeline contaminations as well as pig run history
- Mobilization phase: determine time frame, working procedure, mobilization and installation of high pressure injection and separation equipment
- Operational phase: a team of highly qualified experts performs the complete operation; they will continually monitor, measure and evaluate the progress of the operation
- Demobilization phase: Pipesurvey International cares for environmental issues and complies with governmental regulations for waste disposal. Pipesurvey International generates an operation report with an exact indication of the amount of solids that have been removed.

In one recent case, Pipesurvey International removed 6560 kg of solids from a 22 x 18 km natural gas pipeline which had in the months preceding undergone more than 20 runs with various types of pigs!

## Kathar Cleaning Liquids

### Wire Brush Pig



### Bi-Di Pig