

**B E H A V I O U R B A S E D S A F E T Y
G U I D E L I N E S F O R S A F E D R I V I N G O F R O A D F R E I G H T V E H I C L E S**

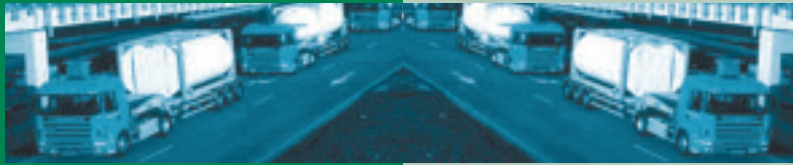


Responsible Care

OCTOBER 2003

Disclaimer:

This document is intended for information only and sets out guidelines for the safe driving of road freight vehicles. The information contained in these guidelines is provided in good faith and, while it is accurate as far as the authors are aware, no representations or warranties are made with regards to its completeness. It is not intended to be a comprehensive guide to all detailed aspects of road safety.



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GUIDELINES FOR SAFE DRIVING OF ROAD FREIGHT VEHICLES**

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1. INTRODUCTION

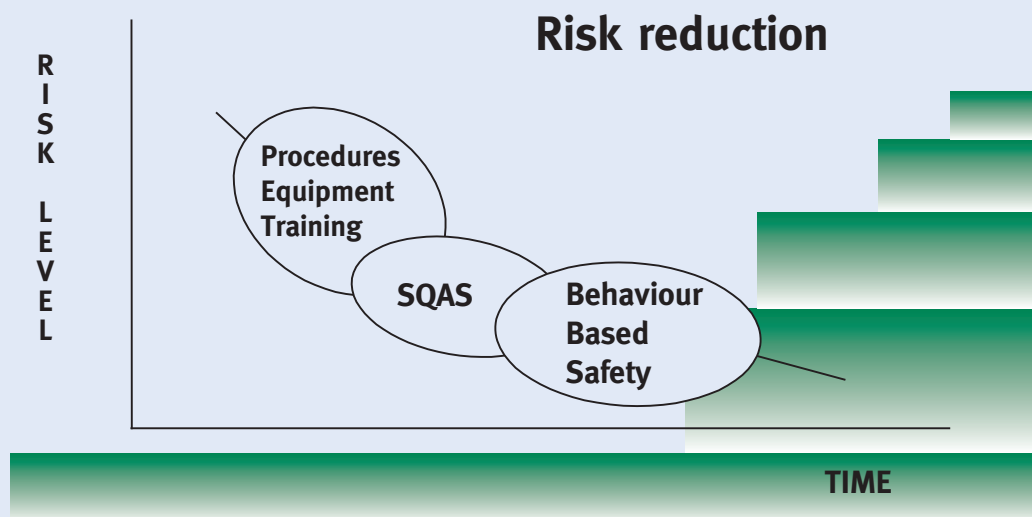


Both the chemical industry and its partners in the transport industry have great concern for all aspects of safety. The chemical industry considers safe transportation of its products as an integral part of the Responsible Care initiative. Continuous efforts to improve road transport safety are therefore part of the overall aim to improve safety performance of both the chemical industry and the transport industry.

Chemical federations and individual chemical companies have for years been involved in promoting projects with the transport companies, aimed at improving road transport safety.

Over the past fifteen years transport companies working for the chemical/petrochemical industry have heavily invested in documented management systems and procedures, improved equipment and extensive training programmes, leading to a significant decrease in the number of road transport accidents. The introduction of the Cefic Safety and Quality Assessment System (SQAS) in 1995 further improved the safety performance of chemical transport operations.

However, this trend has halted in the last few years, with the annual accident statistics of individual companies and federations showing signs of stabilisation or even an increase in the number of road transport accidents.



Due to the increases in transport volume and in work pressure, and also because of general behavioural changes, the demands on drivers of heavy goods vehicles are now much more complex and pressing than in the past. In the short to medium term, substitution of road transport on a significant scale by other modes is not envisaged.

In order to provide a new stimulus for further reducing the number of road transport accidents during chemical transports, Cefic and ECTA took the initiative of promoting the wider implementation of the principles of Behaviour Based Safety (BBS) in the safe driving of road freight vehicles.

A number of individual transport companies have already developed management systems and training programmes with clear links to the philosophy of Behaviour Based Safety. In order to come to a more standardised and consistent approach across both industries with regard to BBS, a joint Cefic / ECTA working group with representatives from chemical and transport companies, made a review of the already existing systems and programmes used by transport companies and training institutes in Europe. This resulted in the present Guidelines, that provide a framework based on the best practices established during this review.

These Guidelines are intended to give a clear and concise outline of how to improve a company's road transport safety performance through BBS, while also demonstrating that safety and economic interests go hand in hand for all parties involved.

The present Guidelines are a practical illustration of the general Guidelines for Safety Awareness and Behaviour in the Supply Chain, issued by Cefic/ ECTA / EPCA in April 2002.



2. OBJECTIVE AND SCOPE

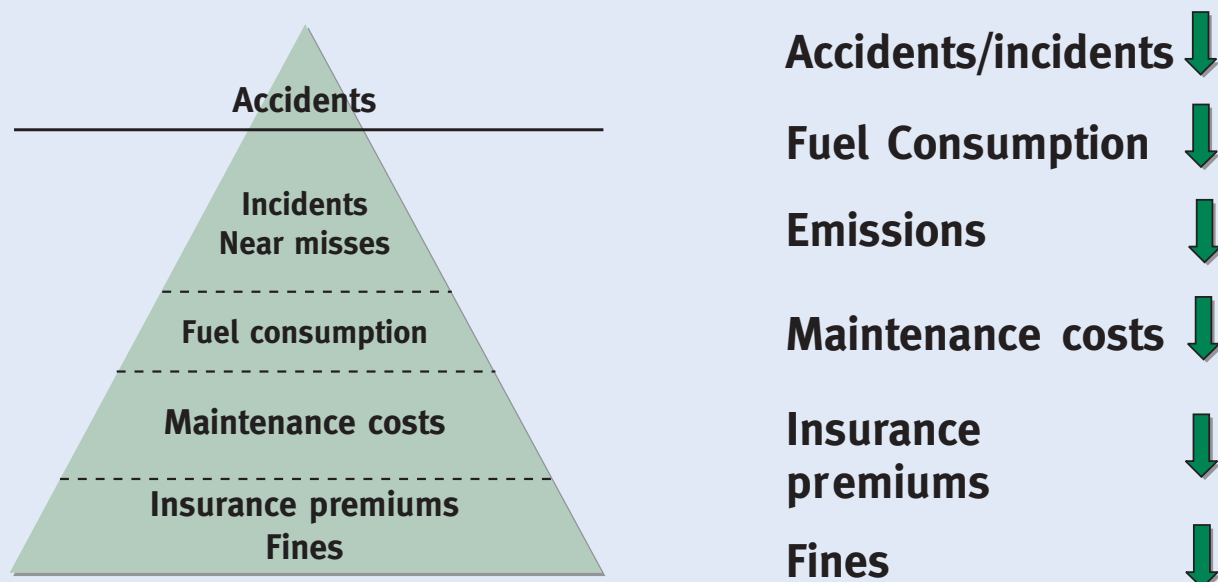
BBS is a programme that aims at increasing safety during road freight transport by positively influencing the behaviour of drivers through observation, coaching and communication.

The BBS programme targets all European chemical transport companies. It is not intended to be a one-off exercise, but it should rather become a continuous effort by every individual transport company.

It is expected that this programme will not only improve safety performance but will also have a positive effect on fuel consumption and other related costs such as maintenance costs and insurance premiums. Ultimately it will improve the total cost-effectiveness of the transport companies.

The results of a pilot project at a Dutch transport company showed a decrease in fuel consumption of 4 to 8 %, a decrease in accidents of more than 40% and a total net saving of 1000 Euro per driver per year.

Benefits of BBS/ Iceberg Principle

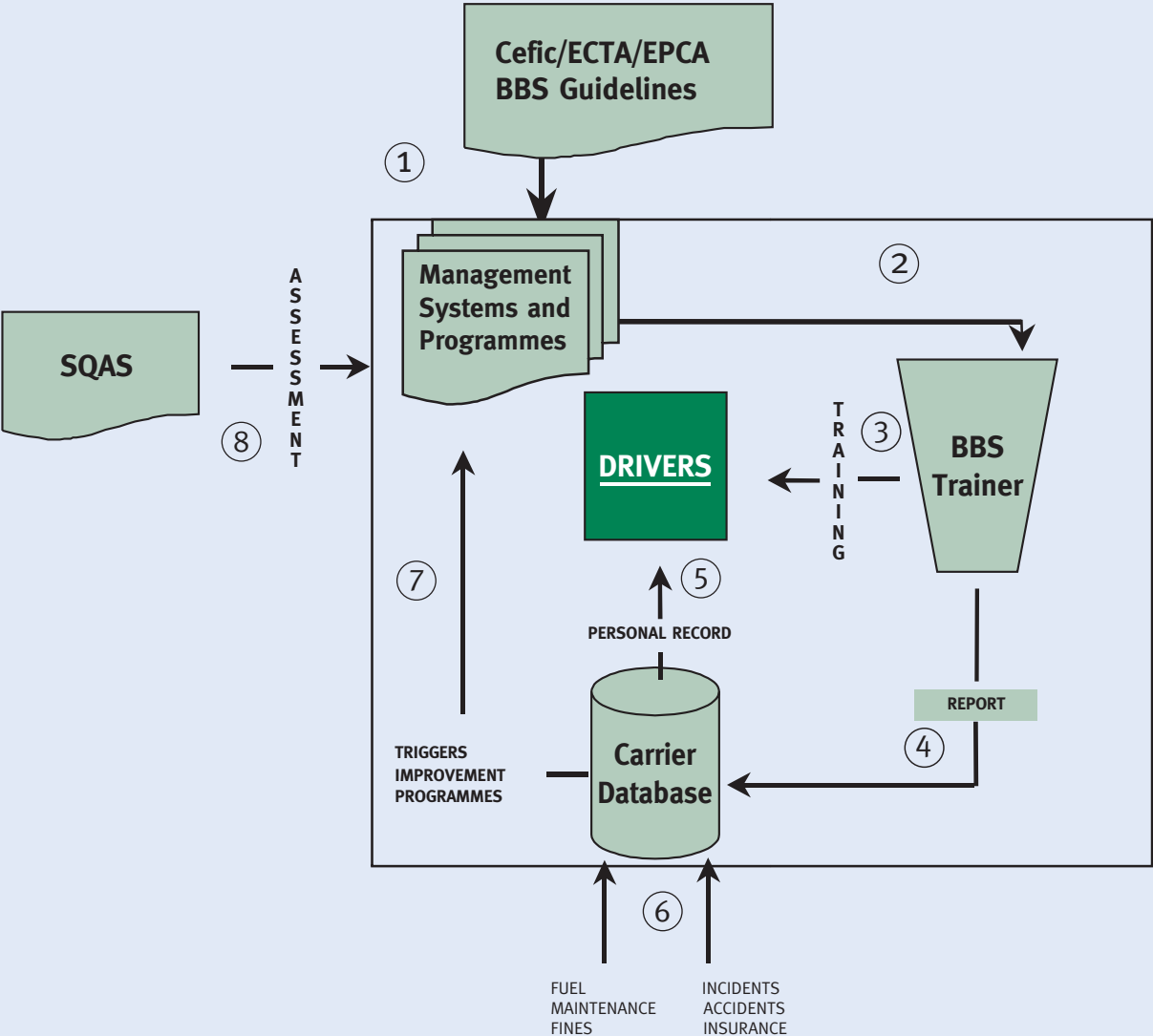


3. PROCESS



The process for implementing BBS should reside in the carrier's organisation as an important element of the continuous improvement programme. It should include the following steps:

1. The company management develops a BBS implementation plan and training programme based on the principles described in the present Guidelines.
2. BBS trainers are recruited (internally or externally e.g. from a training institute) and obtain training in accordance with the principles set out by the present Guidelines.
3. BBS trainers provide individual training to drivers.
4. BBS trainers produce an assessment report for each trained driver, which is kept on file and/or may be incorporated into a database.
5. The drivers obtain a copy of their assessment report and may consult the filing system for their individual records (as required by law in some countries).
6. The company keeps records of performance indicators such as incident/accident statistics, fuel consumption, maintenance costs, insurance premiums and fines.
7. Analysis of the results of the BBS programme by the management will provide a useful tool in deciding on further steps toward continuous improvement.
8. Checking of implementation of BBS during the tri-annual SQAS assessment of the carrier.



4. MANAGEMENT SYSTEM

4.1. POLICY

Successful implementation of Behaviour Based Safety requires a top-down management approach. The company's policy must not only reflect the importance of BBS but also the commitment of the management.

BBS must be fully integrated in the carrier's organisation and management systems. It needs to become an integral part of the company's culture and be one of the key drivers for continuous performance improvement through the implementation of key performance indicators.

KEY PERFORMANCE INDICATORS :

- Accident/incident statistics
- Fuel consumption
- Maintenance costs
- Emissions
- Insurance premiums
- Fines

4.2. RESPONSIBILITIES

4.2.1. MANAGEMENT

Management should:

- Prepare a document describing the company's planned approach towards BBS including all components.
- Communicate this plan to all personnel involved and review it at least annually.
- Develop a BBS training programme.
- Initiate, implement and provide ongoing support for the BBS programme.
- Define roles, deliver resources, resolve issues and remove barriers for a successful implementation.
- Set targets, monitor status and results.
- Keep records of performance indicators.
- Manage the improvement process based on BBS data analysis.

4.2.2. DISPATCHERS / PLANNERS

Dispatchers / planners should:

- Understand and support the BBS programme.
- Avoid planning and instructions that conflict with the BBS principles (e.g. unrealistic delivery times).

4.2.3. TRAINERS

Trainers should:

- Execute the BBS training.
- Observe and interactively communicate the findings with the driver.
- Collect data and report results to management.
- Identify and report any issues that need to be followed up by driver or management (confidentiality of private information to be guaranteed).

4.2.4. DRIVERS

Drivers should:

- Understand the purpose of the BBS programme and be committed to participate.
- Discuss performance weaknesses with the trainer and help in finding solutions.
- Implement preventative changes as a result of the BBS analysis.

4.3. RECORD KEEPING

Driver records, along with the individual training observations and checklists, should be collated by the carrier into an efficient storage and retrieval system (database and/or filing system). Drivers should have the possibility of obtaining a copy of their personal record as a reminder/learning tool for continuous improvement.

Other key performance indicators such as incidents/accidents statistics, fuel consumption, maintenance costs, insurance premiums and fines should be identified, monitored and recorded to demonstrate and follow up the results of the programme.



4.4. ANALYSIS

Management should use the collected data to identify structural trends and issues.

4.5. FOLLOW UP / CORRECTIVE ACTIONS

Results of analyses should trigger corrective actions to processes, safety programmes and employees. The effect of implemented corrective actions should be monitored through the key performance indicators.



5. TRAINING PROGRAMME

5.1. GENERAL TRAINING

The purpose of the general training is to inform and engage transport management and planners about the BBS programme. To generate maximum benefit for the carrier, it is important that management and operational staff fully understand how their role and behaviour may directly affect the behaviour of the driver (e.g. by avoiding extended working hours, rush-orders, delayed/late instructions, unrealistic delivery times, etc.).

This training can be provided in the form of a guidance document.

5.2. DRIVER TRAINING

5.2.1. FORMAT

The form of this training is totally interactive. It is carried out on a one-to-one basis between the trainer and a driver.

The trainer should observe the driver while driving and manoeuvring on the road. The purpose is to assess individual strengths and weaknesses, and address behavioural driving skills that will benefit from improvement. As this can differ from individual to individual, the items listed in section 5.2.4 should be considered as a guideline only, which may not need to be assessed /checked in their entirety at each session.

Behaviour that may lead to an unsafe situation or condition should be corrected by interactive communication between the trainer and the driver. Trainers should have the skill to convince the driver of the unsafe situation and to show him how to prevent or to anticipate this.

5.2.2. CHARACTERISTICS

A successful Behaviour Based Safety training programme needs to focus on driving. The trainer should take the driver onto the road and check/observe a number of key performance criteria including:

- Concentration, observation and anticipation.
- Driving skills as applied to all aspects of driving.
- Vehicle control and observation techniques.
- The principles of accident avoidance.

Throughout the on-the-road assessment, the trainer should positively influence the behaviour of the driver by observing and providing clear feedback on the observations.

Preferably the route should be familiar to both the driver and trainer. It is recommended that a standard delivery route be taken so that the driver is as relaxed as possible. This approach is more likely to reveal how the driver would perform when driving alone.

In the review at the end of the training session the following aspects should be included:

- A positive critique to provide guidance and advice, with a final debriefing to complete an individual risk profile. The trainer should stress the positive aspects while identifying areas for improvement.
- An individual improvement plan for each driver, paying attention to any specific observed performance weaknesses he/she may have.
- An assessment of the driver's overall ability.

It is important to develop a single training programme. It is not advisable to have different training programmes for the original induction training and the refresher training. A single well specified, targeted training should meet both requirements.

5.2.3. DRIVER PROFILE

Before the start of the training a complete profile of the driver should be made available to the trainer. This driver profile should contain details of the following :

- Age
- Years of service
- Driving licence
- Eyesight
- Previous experience
- Driving related fines and convictions
- Safety record
- Previous BBS training record including risk profile and agreed action plan



5.2.4. TRAINING AGENDA

Verbal introduction (15-30 min)

- Introduction
- Schedule of the training day
- Informal conversation
- Experience in different areas (industry sectors, ADR, routes, products, and years of experience, types of vehicles, etc)
- Company house rules
- Observation of mental state
- Social behaviour
- Review of the last BBS training session if applicable

Reflection about

- Causes of the most frequent accidents
- Effects of fatigue and stress on the behaviour of the driver
- Impact on driving of prescribed medicines, tobacco, alcohol, narcotics and other drugs to prevent sleep and drowsiness
- Highway code and transport signs
- Maximum fuel efficiency

Circle check (15-30 min)

Outside vehicle check:

- General vehicle characteristics
- Tyres
- Tightening of wheel-nuts
- Lights
- Oil
- Water
- Fire extinguisher(s)
- ADR-equipment
- Outside cleanliness

Inside vehicle check:

- Visibility check (including dead-angle camera/mirror and any obstructions of the line of sight)
- ADR-equipment
- Equipment specially needed for specific type of work
- Personal protective equipment (if applicable)
- Documents
- Fuel
- Dashboard check
- Safety belt
- Inside cleanliness
- Air-conditioning
- Music (there must be no possibility of changing CDs whilst driving)
- Adjusting of the seat/steering wheel to correct and make comfortable posture

Trailer check:

- General trailer characteristics
- Coupling / uncoupling
- Documents
- Tyres
- Lights
- Air / electrical
- Twist-locks

Driving (120 min)

Individual training for each driver paying particular attention to any specific problems he or she may have (with continuous interaction between driver and trainer).

Conditions / situations

- Manoeuvring
- Lane changes
- Crossings
- Turning
- Approaching and being passed
- Join/exit transport flows
- Behaviour on and nearby special road parts
- Road surfaces and weather conditions
- Using the gearbox, clutch and brakes
- Trailer stability
- Leaving the vehicle

Observations / behavioural skills :

- Attitude (polite / aggressive)
- Concentration
- Involvement
- Awareness
- Observation skills (mirror usage)
- Hazard perception
- Vehicle control
- Positioning
- Separation distance (braking distances and safety distances)
- Speed adaptation (including use of brakes, engine brake, cruise control)
- Defensive driving (anticipating transport situations and other road users)
- Seat belt (usage, adjustment)

Manoeuvring (60 min)

- Preparing to manoeuvre (positioning of the vehicle)
- Special manoeuvres (loading/unloading stations)
- Driving backwards (with a turn and in straight line)
- Observation/vision
- Parking of the vehicle

Debriefing / communication of observations

- Overall evaluation of the course/day
- Verification of checklist and observations (explanation of both positive and negative remarks)
- Identification of areas for improvement and suggested action(s)
- Remarks by the trainee (critique of the course) and signature by the trainee of the evaluation report
- Issue of final report by trainer (sent to the line manager of each trainee)

5.2.5. DURATION / FREQUENCY

The training will take not less than half a day. The frequency may vary between once every 1 to 3 years depending on the annual performance review of each individual driver. One must take into account that the first training has the highest impact and will be of most benefit to the driver.

6. TRAINER QUALIFICATIONS

A successful programme depends heavily on the skills of the trainer. The original selection of the trainer is therefore critical. Trainers can be recruited internally or externally (e.g. from a training institute).

In case of internal trainers it is advisable that they have an independent position and relationship with the drivers. Training of direct colleagues should be avoided. From practical experience within the road transport industry, it is estimated that approximately one in ten experienced drivers have the necessary communication skills, experience, technical knowledge and respect of their peers, to become a successful trainer.

Trainers must fulfil the following requirements:

- Meet the local legislative training criteria (if they exist)
- Be an experienced driver in the type of vehicle used during the training
- Have a good reputation and be well respected amongst peers
- Have several years experience with international transport (if drivers to be trained are involved in international transport)
- Have excellent interpersonal skills
- Be objective and independent
- Have thorough knowledge of the national and international transport regulations and legislation
- Have knowledge of the BBS concept
- Have recognised technical knowledge
- Have an excellent safety record.
- Have a good reputation and lead by example
- Have good reporting skills
- Have the support and acceptance of the training manager

Trainers should obtain an extensive training on the content, objectives and requirements of the carriers' BBS implementation plan and driver training programme, based on the principles set out in the present Guidelines.

7. SQAS

The BBS concept will be fully integrated into the SQAS Road questionnaire.

Specific questions related to BBS will allow the SQAS assessor to assess the implementation of the BBS programme.

8. IMPLEMENTATION TEMPLATE / GAP ANALYSIS

The implementation template (see Appendix) is a useful tool for the carrier to assess gaps in an existing BBS programme or to facilitate the implementation of a new BBS programme



CONTACTS

 **Johan Bakker**

Lyondell
Weenapoint D, Weena 762
3014 DA Rotterdam
The Netherlands
T +31 10 2755886
F +31 10 2755559
ccejxb@lyondell.com

 **Pat Murray**

Shell Chemicals
Building 301
Cheshire Innovation Park
CH1 3SH Chester
United Kingdom
T + 44 1244 685841
F + 44 1244 685825
pat.s.murray@OPC.Shell.com



Chris Boland

DuPont (UK) Ltd
Wegwood Way Stevenage
SG1 4QN Hertfordshire
United Kingdom
T + 44 1438 734370
F + 44 1438 734371
chris.boland-1@gb.dupont.com



Clive Nicholass

BP
Building A Chertsey Road
Sundbury on Thames
TW16 7LL Middlesex
United Kingdom
T + 44 1932 767569
F +44 1932 767923
nicholcs@bp.com



Alwyn Christmas

Sutton & Son Limited
Gorse Lane Widnes
Cheshire WA8 0GG
United Kingdom
T + 44 151 420 2020
F + 44 151 420 3010
alwyn_christmas@suttons-group.co.uk



Malcolm Polhill

DFDS Transport Ltd
Kingsbury Link Trinity Road Tamworth
B 782 EX Staffordshire
United Kingdom
T + 44 1827871705
F + 44 1827871717
malcolm.polhill@dfdstransport.co.uk



Serge Cosemans

DOW Benelux BV
Herbert H Dowweg 5
4530 AA Terneuzen
The Netherlands
T +31 1156 72875
F +31 1156 74248
scosemans@dow.com



Luc Renier

DOW
Herbert H Dowweg 5
4530 AA Terneuzen
The Netherlands
T + 31 1 115674182
F + 31 1 115674248
lrenier@dow.com



Ad de Heer

Hoyer
Oude Maasweg 50
3197 KJ Botlek RT
The Netherlands
T + 31 102953234
F + 31 102953376
adde.heer@hoyer-group.com



Eric van Beek

Den Hartogh
P.O. Box 1159
3180 Rozenburg
The Netherlands
T + 31 181 247817
F + 31 181 217750
evanbeek@denhartogh.com



Evert de Jong

De Rijke
Malledijk 7
3208 LA Spijkennisse
The Netherlands
T +31 181 654 292
F +31 181 654 317
evert.dejong@derijke.com



Rick Van Den Dool

Norbert Dentressangle Chimie
Avenue du Rhône
69360 Sérézin-du-Rhône
France
T + 33 478023531
F + 33 478021131
rick.vandendool@norbert-dentressangle.com



Martin de Kam

ExxonMobil
P.O. Box 1
4803 AA Breda
The Netherlands
T + 31 76 5292618
F + 31 76 5292708
martin.e.dekam@exxonmobil.com



Huig van Wijnen

Huntsman Holland
P.O. Box 1020
3180 AA Rozenburg
The Netherlands
T + 31 181292299
F + 31 181293944
huig_van_wijnen@huntsman.com



Luc Haesaerts

Haesaerts Intermodal
Koningin Astridlaan 29
2870 Breendonk
Belgium
T +32 3 860 64 64
F +32 3 886 71 68
lhaesaerts@haesaerts.be



Joerg Winzenried

Bertschi AG
CH-5724 Dürrenäsch
Switzerland
T + 41 564640734
F + 41 627676800
joerg.winzenried@bertschi.com



Bernard Lemaire

Atofina
4 - 8, cours Michelet, La Défense 10
F-92091 Paris La Défense Cedex
France
T +33 149008696
F +33 149005236
bernard.lemaire@atofina.com



European Chemical Industry Council
Avenue E. van Nieuwenhuysse 4 E. van Nieuwenhuyselaan
1160 Brussels
Belgium
Tel : +32 2 676 73 95
Fax : +32 2 676 74 32
www.cefic.org



European Chemical Transport Association
Avenue de Tervueren 149 Tervurenlaan
1150 Brussels
Belgium
Tel : +32 2 741 86 81
Fax : +32 2 741 86 82
www.ecta.be



European Petrochemical Association
Avenue de Tervueren 149 Tervurenlaan
1150 Brussels
Belgium
Tel : +32 2 741 86 60
Fax : +32 2 741 86 80
www.epca.be