



D-DUST

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Mapei Group

Founded in Milan in 1937, Mapei is today's leading supplier of the most innovative adhesives and chemical products for the building industry. Internationalization is one of the key pillars of Mapei and guarantees maximum proximity to the needs of local markets. The Group today counts **79 subsidiaries**, 7 of which are non operational companies and **67 production facilities in 32 countries**, in **5 continents**.

Mapei has always placed great emphasis on research. In fact, the Group invests 12% of its company's total work-force and 5% of its turnover in R&D; in particular, **70% of its R&D** efforts are directed to develop eco-sustainable and environmentally friendly products. Furthermore, Mapei has developed a sales and technical service network with offices all over the world which offers an efficient Technical Assistance Service that is valued by all its customers and partners.

Mapei and the Cement Industry

Mapei is considered to be one of the leading suppliers of the Cement Industry. Backed by huge problem-solving experience and knowledge of the cement manufacturing processes and related problems, Mapei has been able to grow over the past decade in order to become a highly appreciated technical solution provider.

Dust Issues in Cement Manufacturing

Dust is becoming an ever bigger topic in the Cement Industry; it causes many different problems in areas such as:

- Relationship with the surrounding community; dust formation and pollution of the cement unit surroundings is often a subject of discussion and a risk for the wellbeing of the people living near the cement plant.
- Internal Health & Safety discussions; dust is an important H&S subject in cement units. Even though a lot has been done to reduce dust formation, emission and dispersion, a cement unit is rarely completely dust free.

This creates possible long-term H&S risks for the people working in the plant. Problems may occur if people inhale dust particles, when particles are blown into people's eyes or, for example, when dust creates slippery surfaces.

- Maintenance issues; dust particles may cause problems to vehicles and machinery, thus reducing their performance and life-time and increasing their operational costs.

Dust-related problems may be caused by many different factors such as:

- Windblown particles coming from areas of the cement plant where dust deposits have formed.
- Dust leaking during the cement grinding operation – dust formation in the milling area;
- Dust emission during the transport of (fine) materials – dust coming from conveyor belts, trucks or other material transport systems, thus polluting surfaces like roads and floors;

Because the cement industry inevitably has to deal with dust-related problems (the final product in the end is a fine powder), the management of dust issues is becoming more and more important. Even though the Cement Industry invests a lot in the best available dust-reducing technology like filter systems and similar technologies, it is impossible to avoid dust at 100%.

Dust problems can be divided in two groups:

SURFACE DUST DEPOSITS
(for example roads, buildings, machinery, stockpiles);

CONTINUOUS DUST PUFF GENERATION
(for example when material falls from a hopper onto a belt conveyor);



The Mapei Solution: D-Dust

1) Definition of the problem

A dust deposit is a layer of fine material in powder form on a surface, coming from the cement manufacturing- and/or handling process or from sources outside the cement plant (sand storms etc.), creating problems when factors like heavy traffic or wind blow the material back up in the air.

Continuous dust puffs, on the other end, are related to the (almost) continuous dust emission from the cement- and clinker manufacturing process. For example, puffs can be found in places where material is falling freely from one conveyor belt to another or when there are leaks in the pneumatic transport system.

In both cases, the dust increases environmental pollution, H&S risks and poor visibility. The objective is to suppress this dust and avoid it becomes airborne again.

2) How to tackle the problem

The best available technology for the above described problems is to create a “film” or “coating” on top of the material in case of dust deposits, or make sure dust puff particles are not blown into the air by making the heavier, agglomerate the particles and therewith “immobilize” them. Even though the solution seems to be simple, there are some important requirements for the compounds that can be used for this purpose. In those cases the solution has to be:

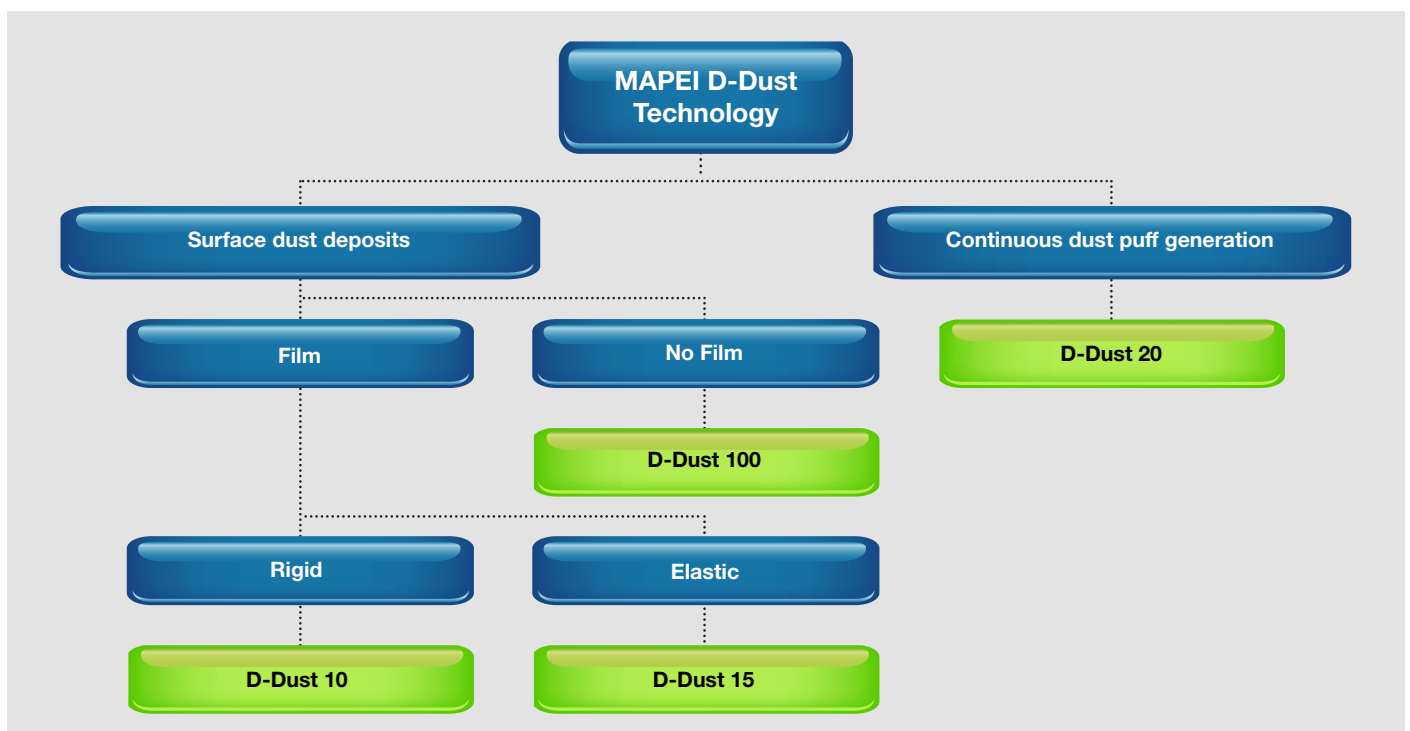
- Economically sustainable
- Practical
- Eco-compatible

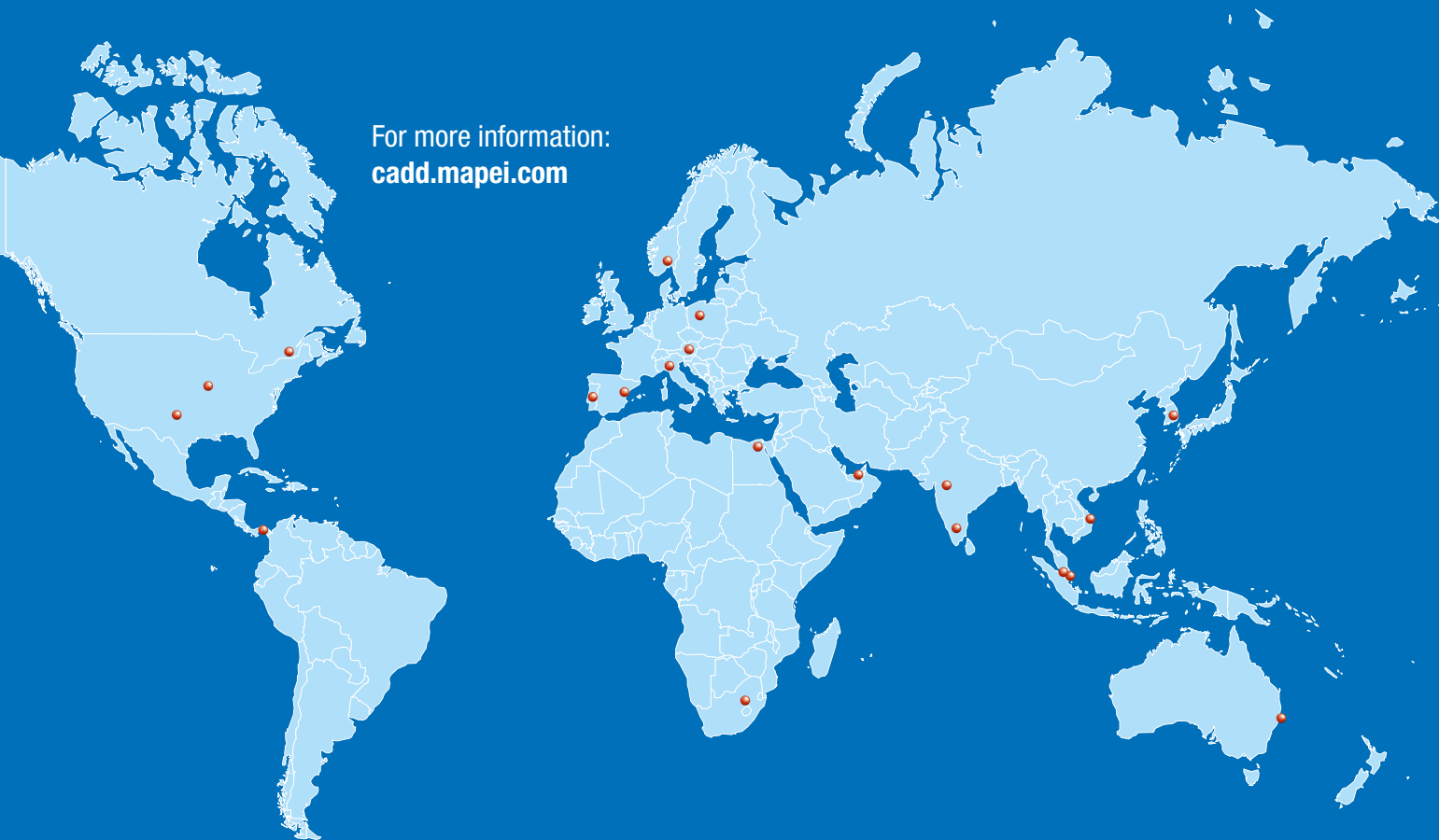
- Invisible
- Subtle
- Durable
- Resistant
- Neutral in terms of color, odor and interaction with the material it covers (the compound may not interfere with the chemical characteristics of the material or the final product it is used for, for example effects on clinker characteristics or strengths of the final cement have to be avoided).

3) The Mapei Products

The solutions provided by Mapei take in account all those specific requirements by using specifically designed polymers which, once sprayed, dry and/or utilized, have one of the following characteristics:

- Rigid film, suitable for flat surfaces and stock piles (D-Dust 10);
- Elastic film, suitable for stock piles and coarse materials (D-Dust 15);
- Non filming consolidation agent for surface dust deposits (D-Dust 100);
- Capturing, allows the incorporation of small particles among water drops in case of dust puffs (D-Dust 20).





For more information:
cadd.mapei.com

AUSTRIA - Mapei Austria GmbH

Fräuleinmühle 2
A - 3134 Nußdorf ob der Traisen
Tel. +43-2783-8891 - Fax +43-2783-8893
Internet: www.mapei.at
E-mail: office@mapei.at
Plant in Nußdorf ob der Traisen
Distribution centres in Vienna, Hall in Tirol, Graz and Klagenfurt

AUSTRALIA - Mapei Australia Pty Ltd

180 Viking Drive - Wacol Qld 4076
Tel. 07 3276 5000 - Fax 07 3276 5076
Internet: www.mapei.com.au
E-mail: sales@mapei.com.au
Plant in Wacol
Office in Sydney

INDIA - Mapei Construction Products India Pvt Ltd

402, 3rd Floor, Tudor Court
No. 40, Lavell Road, Bangalore - 560 001
Tel. +91 80 2222 1820, 2222 1840
Fax +91 80 2222 1810
Internet: www.mapei.co.in
Email: Infoindia@mapei.co.in
Plant in Bangalore and Vadodara
Office in Mumbai

ITALY - Mapei / C-ADD Italy (HQ)

Via Cafiero 22 - 20158 Milan
Tel.: +39 02 376 73 760

ITALY - Mapei SpA

Via Cafiero, 22 - 20158 Milan
Tel. +39-02-37673.1
Fax +39-02-37673.214
www.mapei.com
E-mail: mapei@mapei.it
Plants in Robbiano di Mediglia and Latina

KOREA - Mapei Korea Ltd.

121-914, 14F Office Bldg.
361 Worldcup-bukro, Mapo-gu, Seoul
Tel. +82-2-6393-2300
Fax. +82-2-6393-2323
Internet: www.mapei.co.kr
E-mail: marketing@mapei.co.kr
Plant in Jincheon (Chungcheongbuk-do)

MALESIA - Mapei Malaysia Sdn Bhd

D8-1, Block D8, Dana 1 Commercial Centre,
Jalan PJU 1A/46, Petaling Jaya,
47301 Selangor D.E. - Malaysia
Tel. +603-7842 9098
Fax: +603-7842 6197
Internet: www.mapei.com.my
Email: mapei@mapei.com.my
Plant in Nilai

NORWAY - Mapei AS

Vallsetvegen 6 - 2120 Sagstua
Tel. +47-62-972000 - Fax +47-62-972099
Internet: www.mapei.no
E-mail: post@mapei.no
Plant in Sagstua

PANAMA - Mapei Construction Chemicals Panama S.A.

Transistmica Ave., - Panama City
Tel./Fax +507 261 9549/50
Internet: www.mapei.com
E-mail: mapeipanama@mapei.com.pa
Plant in Panama City
Sales office:
San José, Costa Rica

POLAND - Mapei Polska Sp.z o.o.

ul. Gustawa Eiffel'a 14, 44-109 Gliwice
Tel. +48-32-7754450 - Fax +48-32-7754471
Sales office:

ul. Chalubińskiego 8, 00-613 Warszawa
Tel. +48-22-5954200 - Fax +48-22-5954202
Internet: www.mapei.pl
E-mail: info@mapei.pl
Plants in Gliwice and Barcin

PORTUGAL - Lusomapei S.A.

Business Parque Tejo XXI
Estrada Nacional 1 - Km 29, Gelfas
2600-659 Castanheira do Ribatejo
Tel. +351 263 860 360 - Fax +351 263 860 369
Internet: www.mapei.pt
E-mail: geral@mapei.pt
Plant in Anadia

SINGAPORE - Mapei Far East Pte Ltd

28, Tuas West Road - Singapore 638383
Tel. +65-68623488
Fax +65-68621012 / 68621013
Internet: www.mapei.com.sg
E-mail: mapei@mapei.com.sg
Plant in Singapore

SOUTH-AFRICA

Mapei South Africa (Pty) Ltd
Unit 2C, Anchor Industrial Park
C/o Springbok and Taljaard Road
Bartlett, Johannesburg, South Africa
Tel. +27-11-5528476 - Fax +27-11-5528449
Internet: www.mapei.co.za
E-mail: info@mapei.co.za
Plant in Bartlett

SPAIN - Ibermapei SA

C/Valencia 11 - Pol. Ind. Can Oller
08130 Santa Perpetua de Mogoda (Barcelona)
Tel. +34-93-3435050 - Fax +34-93-3024229
Internet: www.mapei.es
E-mail: ibermapei@ibermapei.es
Plants in Amposta (Tarragona)

and Cabanillas del Campo (Guadalajara)
Distribution centres in Onda (Castellón) and Marratxi (Mallorca)

U.S.A. - Mapei Corporation

1144 East Newport Center Drive
Deerfield Beach, Florida 33442
Tel. +1-954-246-8888 - Fax +1-954-246-8800
Internet: www.mapei.us
Plants in Tempe (AZ), Garland (TX), South River (NJ), Fort Lauderdale (FL), West Chicago (IL), Fredericksburg (VA), San Bernardino (CA), Dalton (GA)

UNITED ARAB EMIRATES

Mapei Construction Chemicals L.L.C
Building No. 5 - 2nd Floor
Green Community, Dubai Investment Park
P.O. Box 73869, Dubai, UAE
Tel. +971 4 815 6666 - Fax +971 4 815 6655
Internet: www.mapei.ae
E-mail: info@ibs-mapei.ae
Plant in Dubai

VIETNAM - Mapei Vietnam Ltd

Plot 8, Street No. 4,
Northern Part of Chu Lai I.Z.
Tam Hiep Commune, Nui Thanh District,
Quang Nam Province - Vietnam
Tel. (84-510) 3565 801-7
Fax (84-510) 3565 800
Internet: www.mapei.com.vn
E-mail: mapeihn@mapei.com.vn
Plant in Chu Lai
(Quang Nam Province)

Vinavil Egypt for Chemicals

Attaqa Industrial Zone - Piece 175
Suez - Egypt
Tel.: +20 62 230 501 / 02 / 03



HEADQUARTERS

MAPEI SpA Via Cafiero, 22 - 20158 Milan - Tel. +39-02-37673.1
Fax +39-02-37673.214 - Internet: www.mapei.com - E-mail: mapei@mapei.it