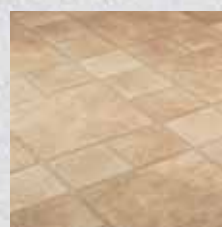
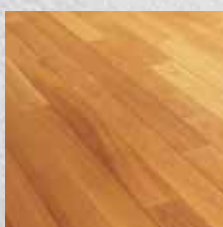


# Orgasol<sup>®</sup>

ULTRA-FINE POLYAMIDE POWDERS





## Les applications

### REVÊTEMENTS

Les poudres **Orgasol**® ont la spécificité d'améliorer simultanément des propriétés telles que :

- la résistance à l'abrasion et la rayure ;
- un contrôle de la brillance et de la texture ;
- une lubrification à l'état solide et un contrôle du coefficient de frottement ;
- l'élasticité et la résistance au choc.

Les poudres **Orgasol**® sont compatibles avec une large gamme de peintures (solvant, aqueux, UV), de techniques d'application (pistolet, rouleau...), ainsi qu'un grand nombre de supports comme le métal, le bois, le plastique...

### ENCRE ET VERNIS

Les **Orgasol**® sont principalement utilisés comme agent glissant dans les encres et vernis de surimpression. Dans les systèmes UV, l'**Orgasol**® a la fonction d'agent matant non thixotrope.

### COMPOSITES

L'**Orgasol**® joue le rôle de liant thermoplastique dans les composites fibre de verre ou carbone, de matrice thermoplastique pour le moulage des métaux par injection et de charge inerte à faible masse dans les composites haute performance.

### SPÉCIALITÉS

L'**Orgasol**® est également utilisé comme additif pour améliorer les propriétés mécaniques des peintures poudres thermodures, d'abrasif doux dans les polishes et d'agent de relargage...

## Applications

### COATINGS

**Orgasol**® powders offer a number of unique advantages in coating application, such as:

- abrasion and scratch resistance;
- texturing and gloss control;
- dry lubricant behaviour and control of coefficient of friction;
- elasticity and impact resistance.

**Orgasol**® can be used in a wide range of coatings (solvent based, water based, UV), different coating processes (roller or spray) and a wide variety of surfaces (metal, wood, plastics, etc).

### INKS AND VARNISHES

**Orgasol**® is normally used in inks and overprint varnishes as an anti-blocking agent. In UV-curable systems, **Orgasol**® functions as a matting agent that does not impact the viscosity of the formulation.

### COMPOSITES

**Orgasol**® is used as a thermoplastic binder for glass and carbon fibers, as a thermoplastic matrix for metal injection moulding and as an inert low weight filler in high performance sealants.

### SPECIALITIES

**Orgasol**® can also be used as an additive to improve the mechanical properties of thermoset powder paints, as a smooth abrasive in polishes or an agent for slow release effects...

## Anwendungen

### BESCHICHTUNGEN

**Orgasol**® bietet einzigartige Leistungsverbesserungen für Beschichtungen wie z. B.:

- Abrieb- und Kratzfestigkeit;
- Struktur- und Glanzeffekte;
- Trockenschmiereigenschaften, geringe Reibungskoeffizienten;
- Elastizität und Schlagfestigkeit.

**Orgasol**® ist einsetzbar in vielen Beschichtungssystemen (auf Lösemittelbasis, wässrig, UV), in verschiedenen Beschichtungsverfahren (Rakel- oder Sprühverfahren) und auf einer Vielzahl von Oberflächen (Metall, Holz, Kunststoff)...

### DRUCKFARBEN UND DECKLACKE

**Orgasol**® wird hauptsächlich als Antiblock-Mittel für Druckfarben und Decklacke eingesetzt. In UV-vernetzenden Systemen wird es als nicht thixotropierendes Mattierungsmittel verwendet.

### VERBUNDSYSTEME

**Orgasol**® wird eingesetzt als thermoplastisches Bindemittel für Verbundsysteme mit Glas- und Kohlefasern, als thermoplastische Matrix im Metallspritzguss und, als inerte leichter Füllstoff in Hochleistungsverbundwerkstoffen.

### SPEZIALITÄTEN

**Orgasol**® wird ebenfalls als Additiv zur Verbesserung der mechanischen Eigenschaften in vernetzbaren Pulverlacken eingesetzt oder als nicht scheuerndes Abriebmittel in Polituren sowie als Absorbtionsmittel für eine verzögerte Wirkstofffreisetzung.



## Aplicaciones

### RECUBRIMIENTOS

Permiten mejorar propiedades tales como:

- resistencia a la abrasión y al rayado;
- control de brillo y textura;
- lubricación en seco y coeficiente de deslizamiento;
- elasticidad y resistencia al impacto.

Los **Orgasol**® se pueden utilizar con los diferentes sistemas de pinturas (base solvente, base acuosa, U.V.) y con las técnicas de aplicación habituales (aerográficas, rodillo, cortina; etc...) sobre diferentes soportes como metal, madera o plástico.

### BARNICES Y TINTAS

Los **Orgasol**® se utilizan principalmente como aditivo para mejorar el deslizamiento en tintas y barnices de sobreimpresión (anti-blocking).

En los sistemas de curado U.V. el **Orgasol**® actúa como un agente matizante no tixotrópico.

### COMPOSITOS

Los **Orgasol**® realizan la función de ligante en los composites a base de fibra de vidrio o carbono de matriz termoplástica y para el moldeo por inyección de polvos metálicos; también como carga inerte en composites de altas prestaciones.

### ESPECIALIDADES

Los **Orgasol**® se utilizan también como aditivo para mejorar las propiedades mecánicas de pinturas en polvo termoendurecibles, como abrasivo suave en pulimentos, como soporte para cesión sostenida de principios activos...

## Applikations-omraden

### FÄRGER

**Orgasol**® erbjuder unika förbättringar av egenskaper hos färger såsom:

- slip och reptålighet;
- mattering och kontroll av ytstruktur;
- torr-srmörjande egenskaper och friktionskontroll;
- elasticitet och slagresistens.

**Orgasol**® kan användas till en rad olika färgtyper (vattenbaserat, lösningsmedelsbaserat, UV härdande) på flera olika underlag (metall, trä, plast) och med olika applikationmetoder såsom bandlackering, lackering, lackering av plåtemballager, sprutlackering för bil och möbelindustrin.

### TRYCKFÄRGER OCH LACKER

**Orgasol**® används normalt i lacker och papperslack som en anti block agent. I UV system fungerar **ORGASOL**® som ett icke tixotrop matterings medel.

### KOMPOSITER

**Orgasol**® används som ett termoplastiskt bindemedel för glas och kolfiber, som en termoplastisk matris vid formsprutning av metall, samt som en lätt inert komposit i högkvalitativa lim och tätningsmassor.

### SPECIALITETER

**Orgasol**® kan också användas för kontroll av ytstruktur i termohärdande pulver lacker, som ett fint slipmedel i polish eller som tillsats för att fördröja migrering.



## Le applicazioni

### COATING

Le polveri **Orgasol**® offrono la possibilità di migliorare simultaneamente proprietà quali:

- la resistenza all'abrasione e al graffio;
- il controllo della brillantezza e dell'effetto testurizzato;
- la lubrificazione allo stato solido e controllo del coefficiente di attrito;
- l'elasticità e la resistenza all'urto.

Le polveri **Orgasol**® sono compatibili con una vasta gamma di formulazioni (a base solventi, all'acqua, UV reticolabili), con un gran numero di supporti (metallo, legno, plastica) e di tecniche applicative come la prelaccatura di fogli metallici, rivestimenti di scatole di conserva, vernici industriali per automobili e arredi.

### INCHIOSTRI E VERNICI

L'**Orgasol**® è utilizzato come agente scivolante negli inchiostri e vernici in sovrimpressioni. Nei sistemi UV, l'**Orgasol**® ha la funzione di agente opacizzante non tixotropico.

### COMPOSITI

L'**Orgasol**® svolge il ruolo di legante termoplastico nei compositi fibra di vetro o carbonio, di matrice termoplastica per lo stampaggio a iniezione di metalli, e di carica inerte, leggera, nei compositi ad alte prestazioni.

### SPECIALITÀ

L'**Orgasol**® è utilizzato come agente testurizzante nelle pitture in polvere termoindurenti, come abrasivo dolce nelle cere per lucidatura e, inoltre, può essere impregnato con vari tipi di sostanze attive per un successivo, graduale, rilascio di quest'ultime.

**CARACTÉRISTIQUES SPÉCIFIÉES / SPECIFIED PROPERTIES  
SPEZIFISCHE EIGENSCHAFTEN**

| Orgasol®   | Polyamide                      | Diamètre moyen<br>Average particle size<br>Mittlere Korngröße<br>µm | Fines particules<br>Fine particles<br>Feinpartikel |    | Grosses particules<br>Large particles<br>Grobpartikel |    | pH                        |
|--|--------------------------------|---|--|----|---|----|---------------------------|
|  |                                |   | µm   | %  | µm  | %  |                           |
| 2001 UD NAT 1  | 12                             | 5 ± 1   | < 2.5  | 2  | > 10  | 5  | > 4                       |
| 2001 UD NAT 2  | 12                             | 5 ± 1   | < 2.5  | 2  | > 10  | 2  | > 6                       |
| 2001 EXD NAT 1   | 12                             | 10 ± 1,5  | < 5  | 2  | > 20  | 2  | > 4                       |
| 2002 EXD NAT 1   | 12                             | 10 ± 2  | < 5  | 2  | > 20  | 2  | > 4                       |
| 2002 D NAT 1   | 12                             | 20 ± 2  | < 10   | 5  | > 30  | 5  | > 4                       |
| 2002 ES3 NAT 3   | 12                             | 30 ± 2  | < 20   | 5  | > 40  | 10 | > 4                       |
| 2002 ES4 NAT 3   | 12                             | 40 ± 3  | < 20   | 2  | > 60  | 5  | > 4                       |
| 2002 ES5 NAT 3   | 12                             | 50 ± 3  | < 30   | 3  | > 70  | 5  | > 4                       |
| 2002 ES6 NAT 3   | 12                             | 60 ± 3  | < 40   | 10 | > 80  | 5  | > 4                       |
| 1002 D NAT 1   | 6                              | 20 ± 3  | < 10   | 10 | > 30  | 15 | > 4                       |
| 1002 ES4 NAT 1   | 6                              | 40 ± 5  | < 30   | 20 | > 60  | 15 | > 4                       |
| 3202 D NAT 1   | 6/12                           | 20 ± 3  | < 10   | 5  | > 30  | 5  | > 4                       |
| 3501 EXD NAT 1   | 6/12                           | 10 ± 3  | < 5  | 10 | > 20  | 5  | > 4                       |
| 3502 D NAT I   | 6/12                           | 20 ± 3  | < 10   | 5  | > 30  | 5  | > 4                       |
| <b>MÉTHODE D'ANALYSE<br/>TEST METHOD<br/>TESTMETHODE</b> | ISO 13319<br>(Coulter Counter) |   |  |    |   |    | ATO 40-40-0<br>(pH meter) |

**CARACTÉRISTIQUES MOYENNES / TYPICAL PROPERTIES / TYPISCHE**

|  | Absorption d'eau<br>Water absorption<br>Wasseraufnahme |           |                                     | Contrainte<br>à la rupture<br>Tensile strength<br>at break<br>Reissfestigkeit | Allongement<br>à la rupture<br>Elongation<br>at break<br>Reissdehnung | Essai de flexion / Bending test / Biegetest        |   |  |       |
|--|--|-----------|-------------------------------------|---|---|--|---|--|-------|
|  | 100°C  | 24 h 20°C | 4 jours<br>4 days<br>4 Tage<br>20°C |   |   | Flèche maxi<br>Maximum bending<br>Maximale Biegung | Contrainte<br>à la flèche maxi<br>Bending strength<br>Biegespannung | Module d'élasticité<br>Elasticity modulus<br>Elastizitätsmodul |       |
| <b>MÉTHODES D'ANALYSE<br/>TEST METHODS<br/>TEST METHODEN</b> | ATO  | ISO R 62  | DIN 53 472                          | ISO R 527   | ISO R 527   | ISO R 178  | ISO R 178   | ISO R 178  |       |
| <b>UNITÉS<br/>UNITS<br/>EINHEITEN</b>                        | %  | %         | %                                   | Mpa   | %   | mm   | Mpa   | Mpa  |       |
| <b>VALEURS<br/>VALUES<br/>WERTE</b>                          | <b>ORGASOL®<br/>1002 D NAT 1</b>                       | 9.7       | 2.5                                 | 4.3   | 69  | 14.5   | 9   | 83   | 1 920 |
|  | <b>ORGASOL®<br/>2002 D NAT 1</b>                       | 2.97      | 0.43                                | 0.75  | 37  | 228  | 8.5   | 51   | 1 300 |
|  | <b>ORGASOL®<br/>3502 D NAT 1</b>                       | 14.75     | 0.98                                | 0.95  | 44  | 370  | 10  | 30   | 800   |

**CARACTÉRISTIQUES MOYENNES / TYPICAL PROPERTIES  
TYPISCHE EIGENSCHAFTEN**

| Surface spécifique apparente<br>Specific surface area<br>Spezifische Oberfläche<br>m <sup>2</sup> /g | Densité apparente<br>Apparent density<br>Schüttdichte<br>g / cm <sup>3</sup> | Masse volumique<br>Density<br>Spez.Gewicht<br>g / cm <sup>3</sup> | Point de fusion<br>Melting point<br>Schmelzpunkt<br>°C | Taux d'humidité<br>Moisture content<br>Wassergehalt<br>% | Commentaires<br>Comments<br>Zusätzliche<br>Informationen |
|--|--|---|--|--|--|
| 9  | 0.215  | 1.03  | 177  | 1  |  |
| 9  | 0.215  | 1.03  | 177  | 1  | Food Contact Approved                                    |
| 4  | 0.275  | 1.03  | 177  | 1  |  |
| 1.5  | 0.375  | 1.03  | 177  | 1  | Food Contact Approved                                    |
| 1  | 0.375  | 1.03  | 177  | 1  | Food Contact Approved                                    |
| 1  | 0.375  | 1.03  | 177  | 1  |  |
| 1  | 0.425  | 1.03  | 177  | 1  |  |
| 1  | 0.425  | 1.03  | 177  | 1  |  |
| 1  | 0.425  | 1.03  | 177  | 1  |  |
| 2  | 0.425  | 1.15  | 217  | 2  |  |
| 1  | 0.425  | 1.15  | 217  | 2  |  |
| 1.5  | 0.450  | 1.09  | 194  | 2  |  |
| 20   | 0.265  | 1.07  | 142  | 2  |  |
| 6  | 0.375  | 1.07  | 142  | 2  |  |
| ISO 9277<br>(BET)  | ISO 1068   | ISO 1183  | ISO 11357-3  | ISO 1269   |  |

**EIGENSCHAFTEN**

| Essai de choc Charpy / Impact strength Charpy<br>Schlagzähigkeit Charpy |                         |  |                         | Dureté Shore D<br>Hardness Shore D<br>Härte Shore D | Point Vicat<br>Vicat Point<br>Vicat Punkt | Coefficient de dilatation linéaire<br>Linear expansion coefficient<br>Linearer Ausdehnungskoeffizient |                       | Résistance à l'abrasion<br>Abrasion resistance<br>Abriebfestigkeit       |
|---|-------------------------|--|-------------------------|---|---|---|-----------------------|--|
| Sans entaille<br>Without notch<br>Ohne Kerbe                            |                         | Avec entaille<br>With notch<br>Mit Kerbe |                         |   |   | - 60°C ' + 50°C   | + 50°C ' + 160°C      |  |
| + 20°C  | - 40°C                  | + 20°C                                   | - 40°C                  |   |   |   |                       |  |
| ISO R 179   | ISO R 179               | ISO R 179                                | ISO R 179               | ASTM D2240  | ASTM D1525                                | DIN 53122   | DIN 53122             | TABER / MEULE / MILLSTONE<br>MAHLSTEIN 418<br>1000 CYCLES / ZYKLEN 500 g |
| kg cm / cm <sup>2</sup>   | kg cm / cm <sup>2</sup> | kg cm / cm <sup>2</sup>                  | kg cm / cm <sup>2</sup> | °D  | °C  | 10 <sup>-5</sup> / °C   | 10 <sup>-5</sup> / °C | mg   |
| NC  | 30 / 46                 | 6.2                                      | 2.8                     | 84  | 186                                       | 11  | 17                    | 50   |
| NC  | NC                      | 4.8                                      | 4.4                     | 79  | 143                                       | 15.6  | 29.2                  | 18.3   |
| 30  | 25                      | 14                                       | 3.5                     | 75  | 125                                       | 12.7  | 18                    | 52   |



## Orgasol®

désigne une large gamme de poudres polyamides ultrafines obtenues par polymérisation du lauryllactame et/ou du caprolactame.

Arkema a choisi de développer des poudres de polyamide en raison de leur bonne tenue aux solvants, de leur résistance thermique et de leur dureté.

Les particules **Orgasol®** ont une forme arrondie, une structure poreuse ainsi qu'une répartition granulométrique très étroite. Leur structure et morphologie sont très différentes de celles observées sur des poudres broyées.

Les différents grades se distinguent par le type de polyamide (PA 6, PA 12 ou PA 6/12) le diamètre moyen (5 à 60 µm), le point de fusion et la surface spécifique.

## Orgasol®

represents a range of ultra fine polyamide powders made by the polymerisation of lauryllactame and/or caprolactame.

Arkema has developed this kind of polyamide powders for their solvent and heat resistance as well as their hardness.

**Orgasol®** particles are virtually spherical, possessing a porous structure and a narrow particle size distribution. Their structure and shape differs from those of ground powders.

The grades are differentiated depending on polyamide type (PA 6, PA 12, PA 6/12), particle size (5 to 60 µm), melting point and specific surface area.

## Orgasol®

steht für ein Sortiment von ultrafeinen Polyamidpulvern, die durch die Polymerisation von Lauryllactam und/oder Caprolactam hergestellt werden.

Arkema entwickelte diese Polyamidpulver wegen ihrer guten Lösemittel- und Wärmebeständigkeit sowie ihrer Härte.

**Orgasol®** Pulver haben runde poröse Partikel und eine sehr enge Korngrößenverteilung. Sie unterscheiden sich in Struktur und Form von anderen Pulvern, die in einem Mahlprozess hergestellt werden.

Die Pulver variieren durch die Art des Polyamides (PA 6, PA 12, PA 6/12), im Durchmesser von 5 bis 60 µm und in der spezifischen Oberfläche.

## Orgasol®

comprende una amplia gama de poliamidas en polvo ultrafinas que se obtienen por polimerización de laurilactama y/o caprolactama.

Arkema ha decidido desarrollar poliamidas en polvo debido a su buena resistencia a los disolventes y a la temperatura.

Las partículas de **Orgasol®** tienen forma redondeada, estructura microporosa y distribución granulométrica cerrada, características muy distintas a las que se consiguen con los polvos obtenidos por molturación.

Los diferentes tipos se distinguen por la clase de poliamida utilizada (PA 6, PA 12 ó PA 6/12) el tamaño de partícula, que puede estar entre 5 y 60 µm y la superficie específica.

## Orgasol®

representerar ett sortiment av ultrafina polyamidpulver tillverkade genom polymerisation av lauryllactam och/eller caprolactam.

Arkema har utvecklat dessa polyamider på grund av produktens hårdhet samt förmåga att tåla lösningsmedel och värme.

**Orgasol®** har en närmast rund form, porös struktur och mycket snäv partikelstorleksfördelning. Produkternas struktur och form skiljer sig från andra produkter som mals efter polymerisation.

Kvaliteter varierar med typ av polyamid (PA 6, PA 12, PA 6/12), diameter från 5 till 60 mikron, smältpunkt.

## Orgasol®

indica un'ampia gamma di polveri poliammidiche micronizzate, ottenute dalla polimerizzazione del laurillattame e/o del caprolattame.

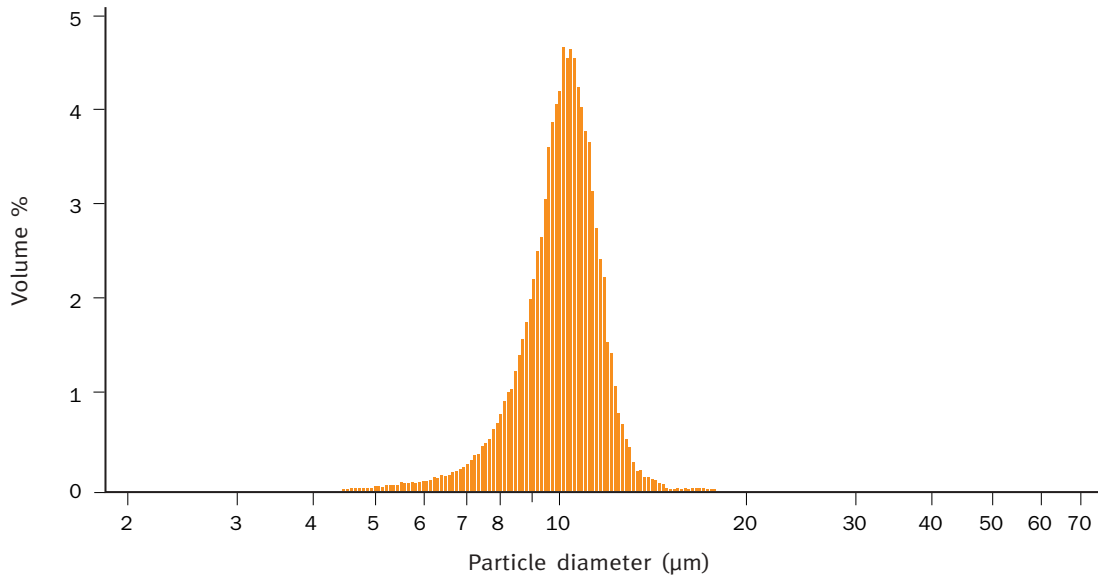
Arkema ha scelto di sviluppare le polveri di poliammide per la loro buona tenuta ai solventi, la loro resistenza termica e per la loro durezza.

Le polveri **Orgasol®** sono composte da particelle di forma arrotondata e struttura porosa, con una distribuzione granulometrica molto ristretta. La loro struttura e morfologia sono sensibilmente differenti da quelle osservate su polveri macinate.

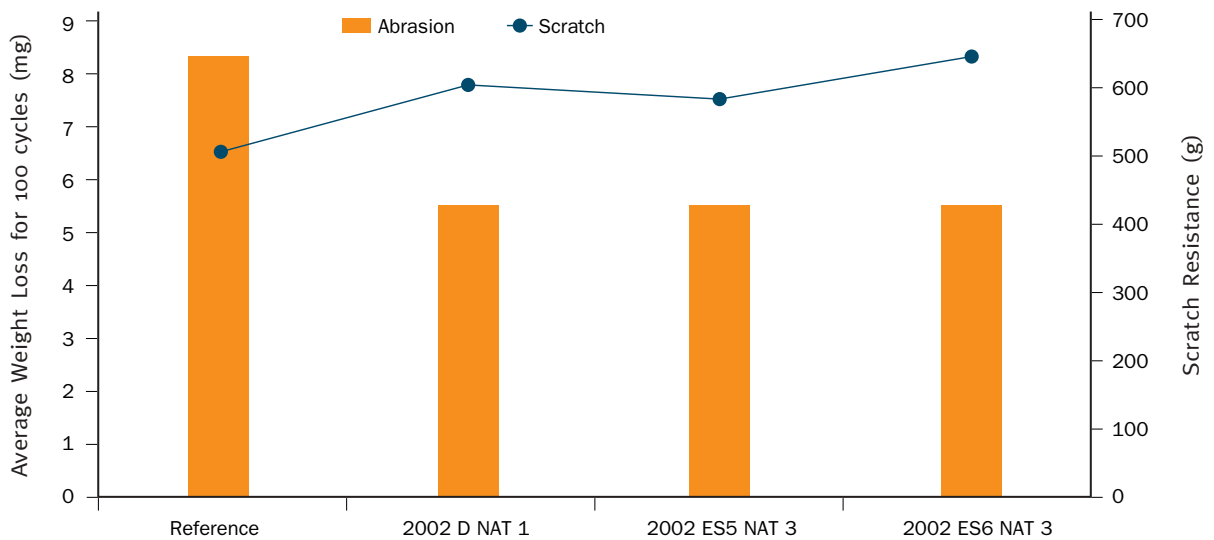
I differenti gradi si distinguono per il tipo di poliammide (PA 6, PA 12 o PA 6/12), la granulometria, da 5 a 60 µm, il punto di fusione e la superficie specifica.

### Orgasol® 10 µm

COULTER® Multisizer AccuComp® 1.15



### Improvement of abrasion and scratch resistance of Polyurethane formulations for coil coating using Orgasol®



Abrasion resistance is evaluated according to ISO 9352 standard on TABER Abrasion equipment, using CS10 wheels loaded with a 1 kg weight. Scratch resistance is evaluated according to CLEMEN standard, indicating the load for which the metallic substrate is reached.

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- Industrial Chemicals: Acrylics, PMMA, Thiochemicals, Fluorochemicals, Hydrogen Peroxide,
- Performance Products: Technical Polymers, Specialty Chemicals, Organic Peroxides, Additives, Urea Formaldehyde Resins, Agrochemicals.

Arkema develops its activities by combining safety and environmental protection, client proximity, industrial reliability, and competitiveness.

Present in over 40 countries with 18,600 employees, Arkema achieves sales of 5.2 billion euros.

With its 6 research centres in France, the United States and Japan, and internationally recognized brands, Arkema holds leadership positions in its principal markets.

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