

Ludiflash® – The taste of success

Making tablets as
smooth as ice cream

Suzanna Brown,
an enabler in excipients



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 **BASF**
The Chemical Company

The smooth path to better tablets



“Ludiflash® makes tablets as creamy on the tongue and as easy to swallow as ice cream. I know. I’ve tried it.” ...

... says Suzanna Brown, Regional Marketing Manager Ludiflash®. One of the great challenges facing the pharma industry today is how to make drugs so easy to take that patients positively enjoy the experience. Patient compliance is one of the key factors in recovery or healing, and hard-to-swallow or bitter-tasting tablets are one of the key barriers to patient compliance.

Ludiflash® was specifically designed to meet this challenge. In developing it, Suzanna Brown and her team set themselves the goal of creating by far the best taste and texture experience available. At the same time, they wanted to see just how much they could help to improve the tablet manufacturing process. The results surpassed even their highest expectations.

The ideal solution from a reliable supplier

Melt-in-the-mouth convenience

Taking tablets is not always easy – when on the go, if clean water is unavailable, or if swallowing is difficult, for example in the case of children and elderly patients. That's why demand is growing for products that disintegrate in the mouth within seconds, while quickly releasing the active ingredients for rapid relief. Ludiflash® answers this call. Plus, it offers a smoother, creamier texture than any other excipient on the market.

A host of benefits for manufacturers

As a tablet manufacturer, you know that flowability, compressibility, hardness and stability are key. Your products must be suitable for polyethylene containers and push-through blister packs. Moreover, you need to ensure flexibility for your business. Ludiflash® delivers on all counts.

Do business your way, with Ludiflash®

- **No licenses**
- **No confidentiality agreements**
- **No royalties**

With Ludiflash®, you are free to use your own production facilities while retaining complete control over your formulations and manufacturing processes. Because you enjoy full commercial independence and flexibility, you can effectively manage your costs. And your product and intellectual property stay where they belong – within your organization.

Ludiflash® delivers enhanced performance, ease of manufacture and consumer acceptance

Ludiflash® is composed of the following:

- **90% Mannitol**
Fast-dissolving filler with a mildly sweet taste
- **5% Kollidon® CL-SF (Crospovidone)**
A superior tablet disintegrant:
 - Highly effective, the tablet disintegrates with very little liquid
 - Offers a pleasantly smooth and creamy mouthfeel
- **5% Kollicoat® SR 30 D (Polyvinyl acetate)**
Hydrophobic binder for enhanced disintegration

Ludiflash® components comply with all leading pharmacopoeia monographs.

Sustainable cost reduction

Enhanced tablet properties

Streamlined manufacturing processes

Complete control of design and intellectual property

Significantly improved consumer experience

Ludiflash® is the excipient of choice for fast-disintegrating, fast-acting formulations

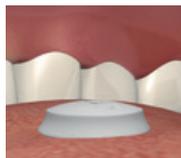
A unique manufacturing process gives Ludiflash® exceptional properties:

- Carefully controlled particle size distribution, particle structure and high bulk density for good flowability.
- A standard tableting process yields excellent uniformity, even at high speeds.
- Compact, highly porous and fast-disintegrating tablets offer exceptional hardness and low friability.
- Tablets can be manufactured, handled and packed using standard equipment.
- Low hygroscopicity ensures the stability of the active ingredients and of the tablet itself.

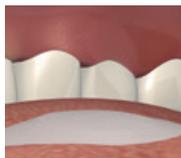
With Ludiflash®,
a hard tablet
disintegrates ...



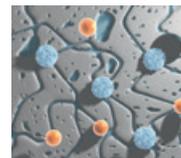
... in the mouth
without the
need for addi-
tional liquid.



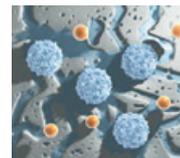
Within seconds,
it disintegrates
completely
to form a fine
cream.



The highly
porous tablet
disintegrates
very quickly ...



... rapidly
releasing the
active phar-
maceutical
ingredients.

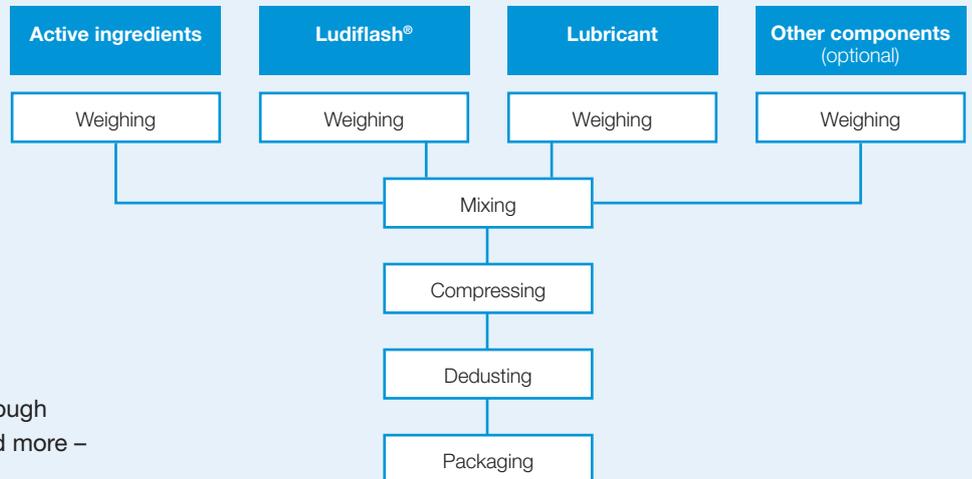


Tableting is possible with any conventional equipment and any preferred packaging type

Ludiflash® saves you time, money and headaches

Ludiflash® is suitable for direct compression and roller compaction. It can also be used in wet-granulation processes where required. Blends can be processed on standard tableting machines or used in the form of granulate or powder. Ludiflash® offers good flowability, minimal water absorption, exceptionally high cohesion and no segregation of active ingredients.

Direct compression offers clear advantages. The components are weighed, mixed and directly compressed. What's more, direct compression is very gentle on the active ingredients.

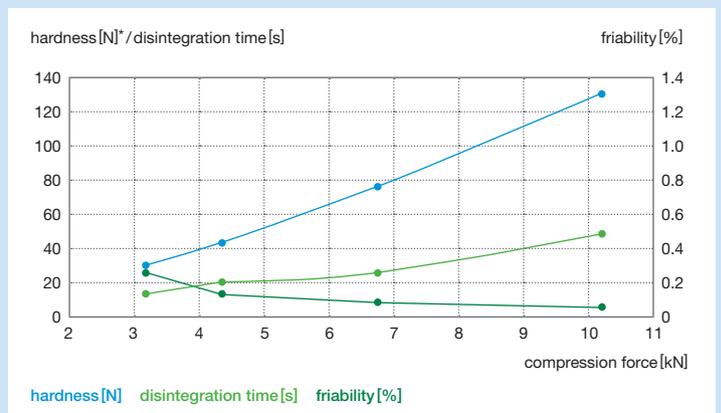


Ludiflash® tablets can be packed in push-through blisters, polyethylene containers, sachets and more – all using standard equipment.

Example application: a Ludiflash®-based placebo



With Ludiflash®, you can manufacture tablets that are extremely hard, yet disintegrate in seconds. The tablets also exhibit low friability and have an especially pleasant mouthfeel.



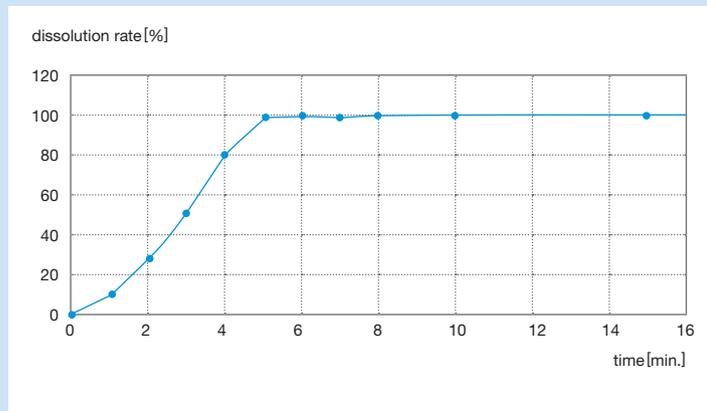
* For 10 mm tablets (round, flat)

Example application:

Risperidone formulation with Ludiflash®

With Ludiflash®, the Risperidone formulation exhibits a hardness of 56 N (10 mm round, flat tablets) and an extraordinarily low friability of less than 0.1 % at a compression force of only 4 kN.

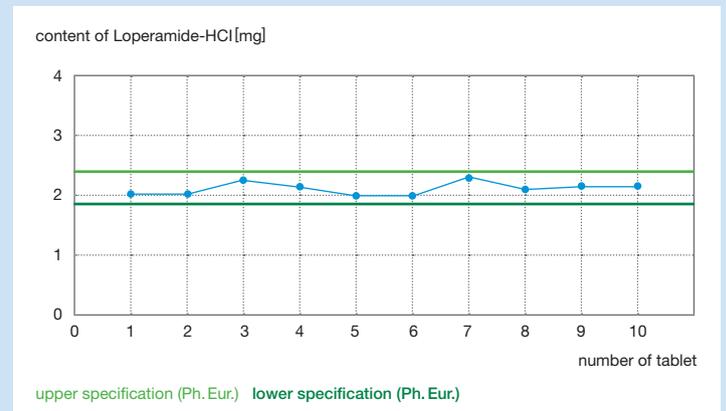
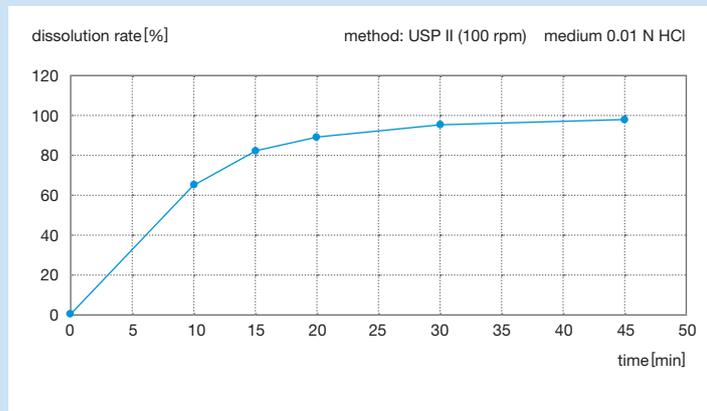
The disintegration time is less than 30 seconds and 98 % of the active ingredient is dissolved within just 5 minutes.



Example application:

Loperamide formulation with Ludiflash® and additional Kollidon® CL-SF

With the Loperamide formulation, it is possible to achieve a hardness of 30 N (7 mm round tablets) at a compression force of only 3.7 kN and an extraordinarily low friability of less than 0.1 %. The tablet disintegrates completely within only 11 seconds, leading to a dissolution rate of 95 % of the active ingredient within 30 minutes. Tablet uniformity is achieved with an extremely high degree of reliability.



The best choice for rapid drug delivery

Ludiflash® is the excipient of choice for fast-disintegrating formulations for rapid relief. It is compatible with other typical ingredients in standard formulations.

Adding small amounts of BASF's Kollidon® CL-SF can further accelerate disintegration.



Ludiflash® at a glance

Ludiflash® cuts your costs

- All-in-one system: filler, binder and disintegrant
- Lower storage costs (one material, not three)
- Lower analysis costs
- Faster product development and faster process validation

Ludiflash® can enhance the properties of your tablets

- Tablets with exceptional tensile strength and hardness
- Tablets with extremely low friability
- Minimal hygroscopicity
- Extremely rapid disintegration
- Extremely fast dissolution rate
- Packaging possible in suitable push-through blisters and polyethylene containers

Ludiflash® can simplify your tableting process

- Good flowability
- No segregation of active ingredients
- High compression speeds without compromising tensile strength
- Low-cost, high-speed manufacture

Ludiflash® gives you independence

- No license, no confidentiality, no royalty: full control over formulation, manufacturing process and intellectual property

Ludiflash® makes for a more pleasant consumer experience

- Disintegrates in the mouth within seconds
- Creamy and smooth mouthfeel
- Easy-to-use: mechanically stable tablets in push-through blisters
- Neutral to mildly sweet, pleasant taste
- Sugar-free, non-cariogenic ingredients
- Can be taken without water – anywhere, anytime
- Fast acting for rapid relief: promotes patient compliance

Ludiflash® – for drugs patients love to take and manufacturers love to make

- Enhances patient compliance by making drugs pleasant to take and taste
- Makes tablets easy to swallow, even without water
- Increases acceptance of tablets by the very young and elderly
- Provides flowability, compressability, hardness and stability in production

Ludiflash® has been designed to overcome patient resistance to taking tablets by making them pleasant in the mouth and easy to swallow, even without water. It also ensures that the active ingredients are delivered quickly and reliably. Ludiflash® simplifies processes and can be incorporated in a variety of production techniques including compression, roller compaction and granulation.

Contact us to find out how Suzanna Brown and her colleagues can use Ludiflash® to help you produce even more popular and successful pharmaceutical products.

North America

BASF Corporation

Suzanna Brown
USA
Phone: +1 973 245 6390

Asia/Pacific

BASF South East Asia Pte. Ltd.

Satish Moorkath
Singapore
Phone: +65 6398 5101

South America

BASF S.A.

Gabriela Aguillar de Souza
Brazil
Phone: +55 11 2039 2861

Europe

BASF SE

Peter Hoffmann
Germany
Phone: +49 621 60 76928

pharma-ingredients@basf.com
www.pharma-ingredients.basf.com

 **BASF**
The Chemical Company

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