



Excipients

NISSO HPC

Hydroxypropyl Cellulose

USP/NF, EP, JP • Silica/additive-free

- Wet Granulation
- Modified Release
- Tablet Coating



- Contains no Silica or Additives
- Soluble in water and organic polar solvents at room temperature
 - Special **Low Viscosity** Grades Available



“Nisso HPC excipient has proven performance worldwide and meets the highest quality standards for pharmaceutical use”

Nisso HPC is the leading pharmaceutical binder in Japan and used in over 3,000 marketed drugs worldwide. Nisso (Nippon Soda Co., Ltd) has over 40 years of experience and technical know-how for manufacturing premium quality, silica-free HPC.

Nisso HPC Grades

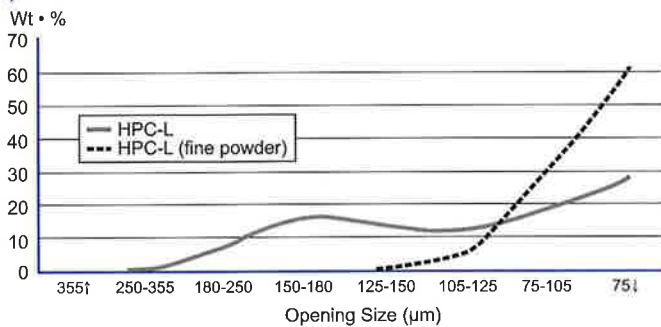
Available in Regular and Fine Powder Types

NISSO HPC	SSL	SL	L	M	H
mpa•S @20°C (2% aqueous)	2.0~2.9	3.0~5.9	6.0~10.0	150~400	1,000~4,000

Regular Type: 99% passes through 40 mesh sieve (350µm)

Fine Powder Type: 99% passes through 100 mesh sieve (150µm)

Particle Size Distribution for HPC-L and HPC-L Fine Powder



Solubility of HPC in water and typical solvents

Amount of HPC (g) which dissolves in 100g of solvents

NISSO HPC	SSL	SL	L	M	H
Water	70g	50g	40g	20g	10g
Methanol	70	50	40	20	10
Ethanol	70	40	35	20	10
Isopropanol	40	20	15	10	5
Propylene Glycol	40	20	10	0.5	0.5

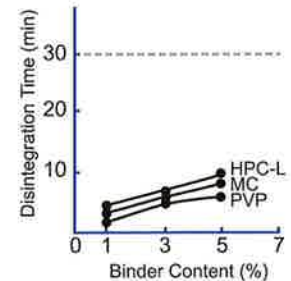
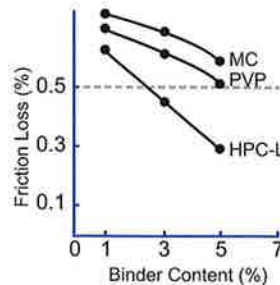
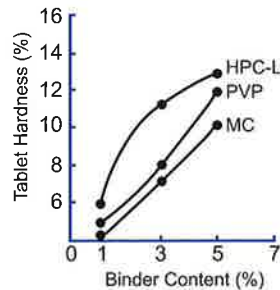
Advantages of Low Viscosity HPC

HPC-SL and HPC-SSL are **low viscosity grades** that are easier to handle as a binder and allow better control of granulation. Also, binder solution concentration can be increased to reduce granulation time (Ref. 1).



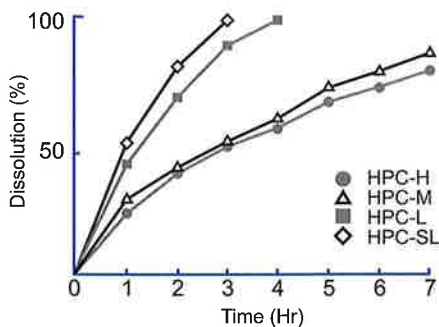
Wet Granulation: HPC vs. other common excipients

As wet granulation binder Nisso HPC gives an excellent **balance of properties** to oral solid dosage tablets by imparting superior **strength + elegance** without compromise of the disintegration profile (Ref. 2).



Controlled Release: HPC in a matrix tablet

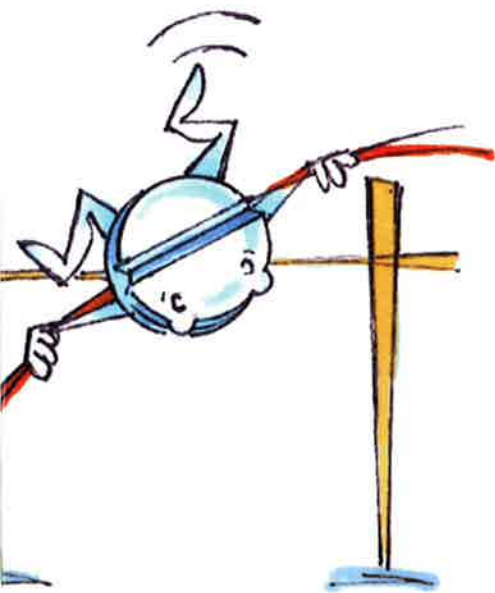
As a water-soluble polymer Nisso HPC is very useful as a component of a **controlled release matrix tablet**. Hydration, dissolution and rate of swelling in water of HPC generally increases as the viscosity of HPC is lowered. Consequently the release rate of drug increases. Conversely, the release rate of drug decreases as the viscosity of HPC increases.



Release rate of chlorpheniramine maleate from HPC tablets of varying viscosity. (Ref. 3)



“Nisso HPC offers many desirable excipient functions for oral solid dosage tablets depending on your application: wet granulation, modified release, tablet coating...”



Direct Compression

HPC-L Fine Powder blended with other excipients improves **hardness** and **friability** of a direct compression tablet (Ref. 4)





References

Available online at www.nissoamerica.com

1. Using low viscosity grades HPC-SL, -SSL as a binder (Application Note WG04)
2. Tablet properties using HPC vs. other common binders for challenging API's (Application Note WG02)
3. Controlled drug release using HPC in a matrix tablet (Application Note CR02)
4. Use of HPC-L fine powder type for direct compression (Application Note DC01)

Samples and Information

Please send your request to:

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For further technical information on Nisso HPC,
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