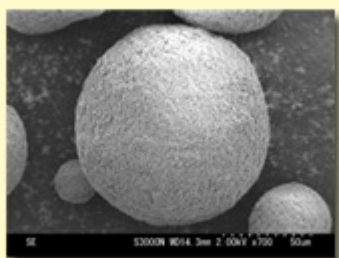
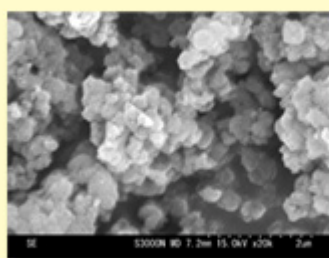


**Neusilin®** is a synthetic, amorphous form of Magnesium Aluminometasilicate and has been in the Japanese market for more than 50 years. Fuji's unique manufacturing process makes Neusilin a remarkable product with multiple functions for direct compression or wet granulation. **Neusilin®** is manufactured under strict quality control at our FDA-GMP certified facilities and are available in various grades. In this news letter, we highlight the oil adsorption capacity and flow enhancing properties of two of our best grades in the market.

### Micrographs of Neusilin®



NEUSILIN US2 (X 700)



NEUSILIN UFL2 (X 20,000)

### Chemical formula: $Al_2O_3 \cdot MgO \cdot 1.7SiO_2 \cdot xH_2O$

Chemical Abstract Service (CAS) Number: 12511-31-8

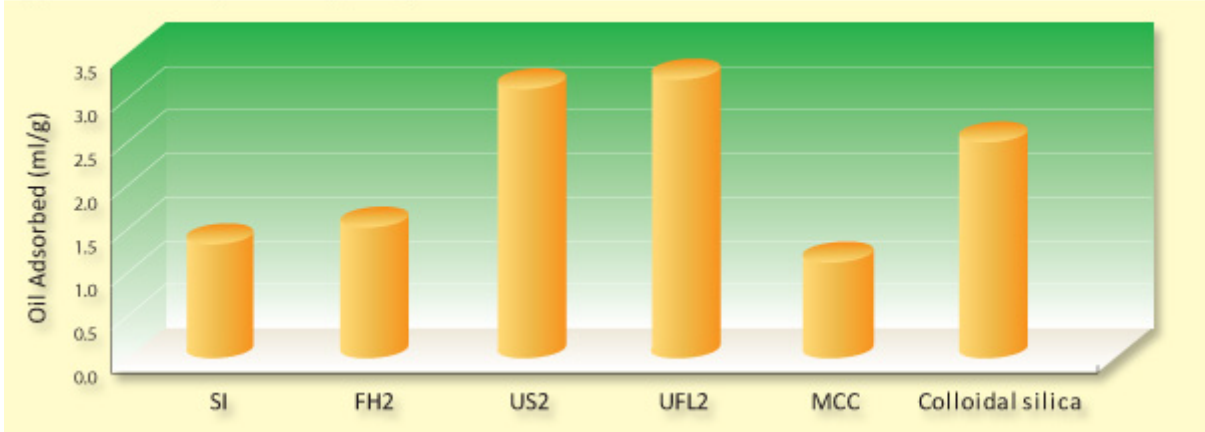
U.S. Drug Master File (DMF) filed

### Typical Properties

PROPERTY	Grade S1 (Granule)	Grade FH2 (Powder)	Grade US2 (Granule)	Grade ULF2 (Powder)
Loss on Drying (%)	16.0	2.8	1.4	1.8
Bulk Density - Loose (g/ml)	0.33	0.31	0.15	0.08
Bulk Density - Tapped (g/ml)	0.40	0.43	0.19	0.13
True Specific Gravity (g/ml)	2.0	2.2	2.2	2.2
BET Specific Surface Area (m <sup>2</sup> /g)	110	110	300	300
Mean Particle Size (µm) (Agglomerate)	70 - 110	10 - 20	60 - 120	2 - 8
Angle of Repose (Degrees)	30	45	30	45
Oil Adsorbing Capacity (ml/g)	1.3	1.5	3.2	3.2
pH of 5% Slurry	9.4	9.7	7.4	7.4
Packaging (Kg)	20	10	10	5

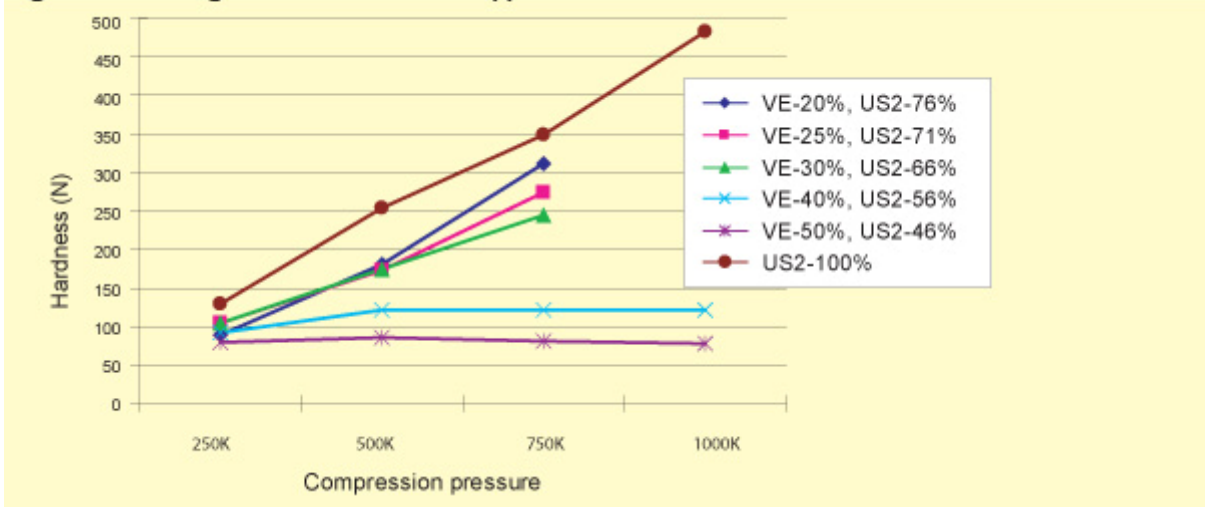
The grades US2 and UFL2 have large specific surface area which helps adsorb oils up to three times its own weight. In addition, these grades give you better flowability and harder tablets at low compression force. Unlike traditional Magnesium Aluminum Silicates, where the pH is alkaline, US2 and UFL2 is neutral giving you a broader API compatibility. The following figures illustrates the **Neusilin® advantage** in solving problems with oily actives.

**Fig 1. Oil Adsorption Capacity**



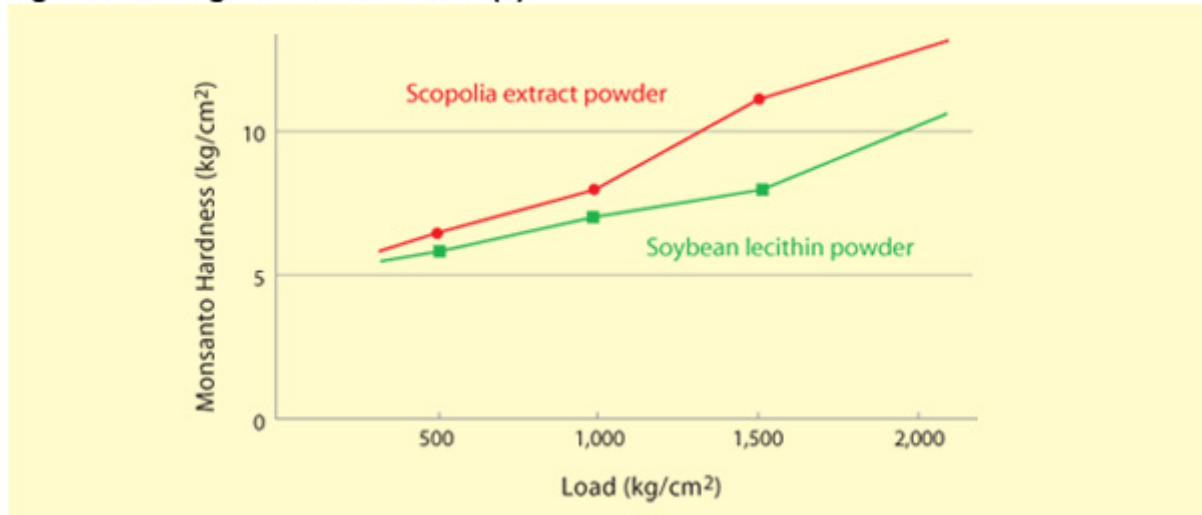
Oil adsorption capacity: Neusilin US2 and UFL2 grades show higher oil adsorption capacity when compared to MCC or Colloidal silica

**Fig 2. Tableting Oils and Extracts- (i)**



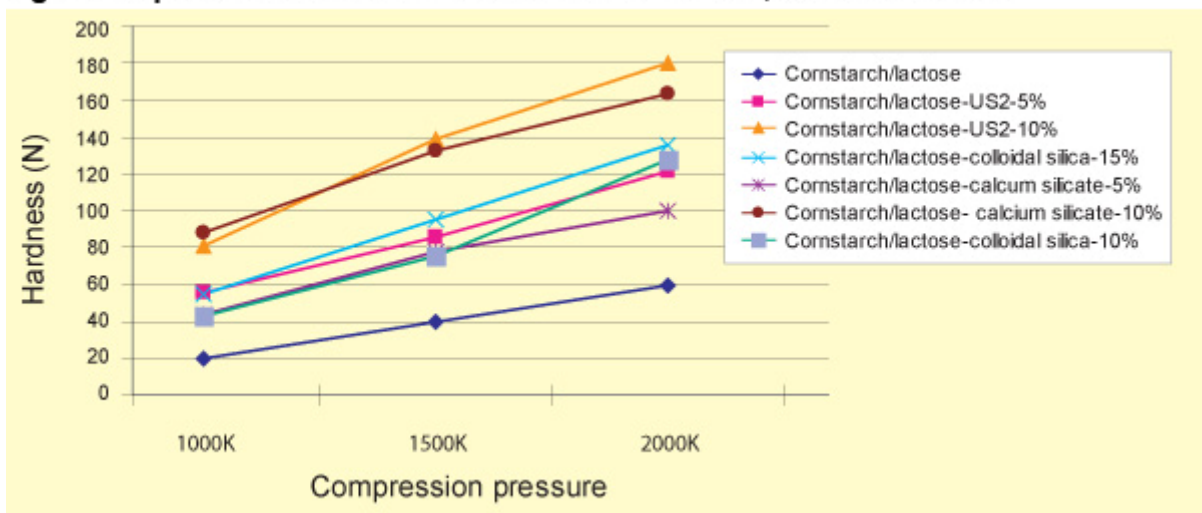
An ethanol solution of tocopherol acetate (VE) 20-50% was compounded with proportional amount of Neusilin and mixed well. To this mixture, 3% Croscarmellose sodium and 1% Magnesium stearate was added before tableting. High quality tablets with a load of up to 30% Vitamin E can be prepared with Neusilin US2.

**Fig 3. Tableting Oils and Extracts- (ii)**



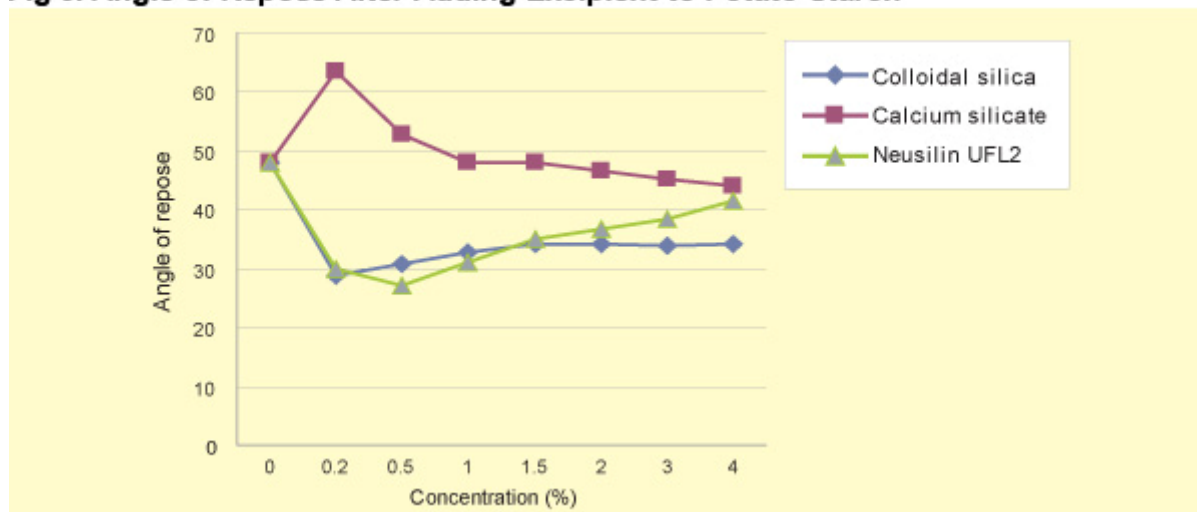
A mixture containing 25% Scopolia extract or Soybean oil and 25% UFL2 was compounded with equal amount of Lactose. This mixture was subjected to static compression and tableting. There was no adhesion to pestle and mortar and the compressibility was good. The tablets did not exude extract or oil under compression or during storage.

**Fig 4. Comparison of Neusilin US2 with Colloidal Silica, Calcium Silicate**



Tablet hardness of cornstarch/lactose based tablets compounded with either using Neusilin US2, colloidal silica or calcium silicate. Corn starch, lactose and excipient were mixed thoroughly. Magnesium stearate as lubricant was added prior to tableting. Compression with Neusilin US2 generally gives harder tablets compared to colloidal silica.

**Fig 5. Angle of Repose After Adding Excipient to Potato Starch**



Improving angle of repose of potato starch: Comparison with Neusilin UFL2, colloidal silica and calcium silicate. 0.5% Neusilin UFL2 gives the greatest improvement of angle of repose with potato starch.

These highlights are just a few of the multifunctional properties that make **Neusilin®** your ideal excipient to produce high quality tablets containing oily actives.

#### **Dosage and Safety:**

**Neusilin®** is extremely safe with no reports of adverse reactions and is listed in the US Pharmacopeia/ National Formulary and Japanese Pharmaceutical Codex. Please consult Fuji technical sales team for your specific requirements.

**Neusilin®** is available in various grades to meet the diverse requirements of complex actives that can be converted to oral solid-dosage forms. To obtain a sample or to find your local distributor, please contact us at [pharma@fujichemical.co.jp](mailto:pharma@fujichemical.co.jp). For more technical information, please visit <http://www.fujichemical.co.jp/english/neusilin.html>

FUJI CHEMICAL INDUSTRY CO., LTD.

Information found is presented in good faith and no guarantee or obligation as to accuracy and no assumption of liability. The information herein does not imply a performance warranty. Purchasers should decide the suitability of the product with respect to their desired application and purpose.