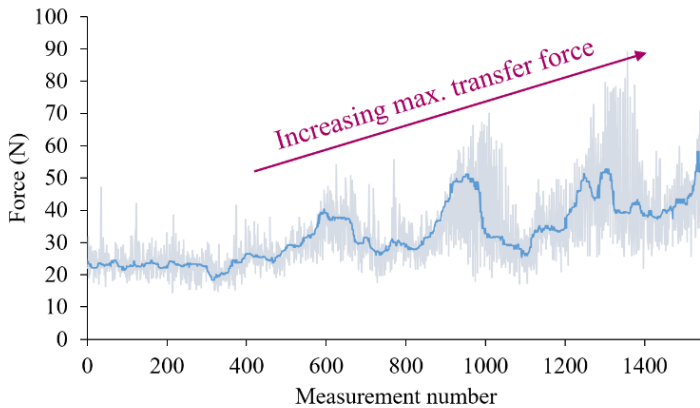


PHARMA SOLID KNOWLEDGE REPORT

Waxy Sticky Powder

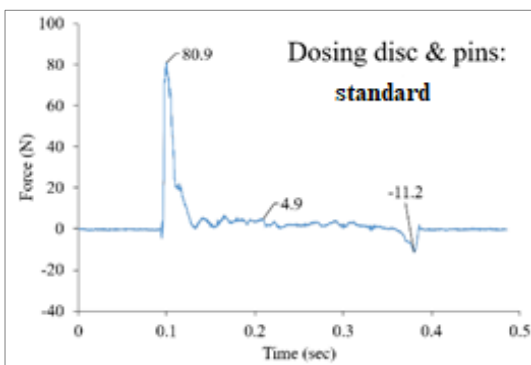
TYPICAL BEHAVIOR OF A PRODUCT WHICH LEADS TO PROBLEMS REGARDING MACHINE BLOCKAGES

When a product builds up hard deposits accumulate inside the dosing disc bores, which makes the transfer forces increase. Higher and higher forces are needed to push the powder out of the dosing disc and into the capsule. This increase of forces might result in blockages and machine damages. In this typical experiment the maximum force increased from 20 up to 80 N within only 12 minutes of full speed operation.



PAT (PROCESS ANALYTIC TECHNOLOGY) SENSOR TO MONITOR THE FORCES AND SPECIAL PARTS AND SETTINGS WILL IMPROVE THE HANDLING AND DOSING OF YOUR WAXY PRODUCTS

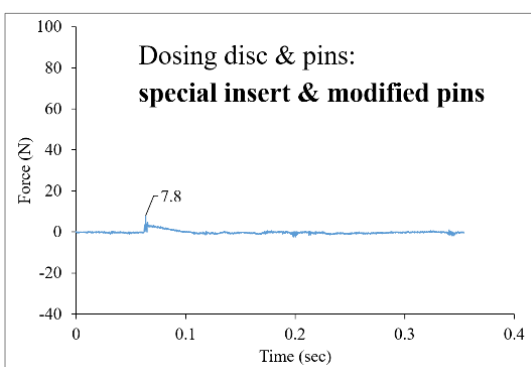
With the PAT-classic sensor package Bosch offers the opportunity to measure the transfer forces on the powder station to eliminate the risk of blockages. Various modifications on parts and machine settings are available to optimize the handling and dosing of your waxy / sticky products. One option is to use a conical dosing disc bore. Here the pins still have to travel through deposits narrowing the bore in a smaller area. Another option is to use modified pins or a modified dosing disc. With our experience special solutions can be found and great results can be achieved when filling your waxy products.



Slide Gates



Zebra Ring



Dosing Disk Inserts



Modified Tamping Pins

Product Description

Product name: Myristic acid API: Myristic acid API classification: Adsorbents Excipients: Carnauba wax

Comment: Experiences with waxy and/or sticky products are available.

Customer Requirements

Syntegon Test Trial

Machine Parameters

	Current	Target	Result	
Output [c/h]	< 40.000	> 90.000	156.000	Dosing disc height [mm]: 11.7
Machine type	Unknown	GKF 2600	GKF 2600	Capsule size dosing disc: 1
Dosing station	Dosator	Tamping pin	Tamping pin	Tamping pin adjustment [mm]: n.a./n.a./n.a./n.a./20
Capsule size	1	1	1	Powder bed height [mm]: 15
Capsule material	Gelatine	Gelatine	Gelatine	Auger Speed [rpm]: 50
Empty Capsule supplier	Unknown	Capsugel	Capsugel	Post feed time auger [sec]: 5
Fill weight [mg]	210	210	210	Additional Features: see comment
Accuracy [%]	+/- 7	+/- 7	+/- 3.7 %	
Range [mg]	195–224	195–224	202.2–217.8	Comment: Special tamping pins Special tamping ring Only one tamping station
Yield [%]	< 90 %	> 90 %	> 97 %	

Conclusion

- Waxy ingredients start to melt/ stick with friction and compression force: Single tamping station in combination with slide gate technology to minimize friction and allow gentle compression (known as "pellet dosing via powder station" mode)
- Secure machine from blockages: special shape and material of transfer pins as well as of tamping ring; PAT sensors
- Safe capsule transport: use intensive cleaning station for each cycle to keep capsule carrier segments clean
- Further options available depending on requirement e.g. polished surfaces or alternatively special tamping pins, dosing disc inserts, dosing disc bore design, PAT-classic sensors, and more

For handling waxy/sticky products with critical physical properties, the GKF series with proven tamping pin principle and slide-gate-technology is a fully suitable solution.

More Questions?

You also have processes for optimization?

Please contact us. Our "Engineering Pharmaceutical Service" team will be available with all our experience of over 50 years:

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