Commercially Available Grades of Jungbunzlauer Xanthan Gum

Jungbunzlauer xanthan gum can be classified according to following criteria:

1. QUALITY

2. PARTICLE SIZE

3. PERFORMANCE

QUALITY

Jungbunzlauer offers xanthan gum in food/pharmaceutical, personal care, oral care and technical quality. Food grade guarantees a very high purity, especially in respect to microbiology (plate count), residual isopropanol (IPA) and heavy metal contaminations compared to the technical quality. A subquality of food focuses on personal and oral care. These qualities are even more strict regarding heavy metals, microbiology and colour. Moreover, oral care guarantees the absence of amylase and personal care the absence of amylase and cellulase. In pharmaceutical applications all food qualities can be used as excipient. The food quality is also suitable for feed.

There is no difference in flow and stabilization behaviour between food and technical grade.

PARTICLE SIZE

Jungbunzlauer xanthan gum is available in different particle sizes and granulations:

G	=	coarse	(= 45 mesh)
N	=	normal	(= 80 mesh)
F	=	fine	(= 200 mesh)
LD	=	low dust	(= 80 mesh; max. 15% through 270 mesh)
ED	=	easily dispersible	(= 16 mesh)

PERFORMANCE

Jungbunzlauer offers following xanthan gum types:

Standard Grades   FN, FF, FG, TN, TF, TG
Available as food and technical grade in normal, fine and coarse particle size with a viscosity ranging from 1400 – 1600 mPa·s.

LD (low dust)   FNLD, FNCS-LD
Available as food grade xanthan gum in normal particle size with the additional benefit of containing less dust. The viscosity ranges from 1400 – 1600 or 1700 mPa·s.

ST (salt tolerant and high stability)   FNST, FFST, TFST
Salt tolerant and high stability xanthan gum has been developed for use with high concentrations of salt (up to 20% NaCl). Typical applications are in high salt sauces and dressings, marinades and brine solutions for ham injection. Furthermore, this grade has an excellent stabilizing potential also at moderate salt concentrations. Xanthan gum ST is available in fine and normal particle size.

P (reduced pseudoplasticity)   FNP, FNPP, TNP
Xanthan gum P offers a modified rheological behaviour (smoother flow) when specific flow properties are desired in the end product. The reduced pseudoplasticity makes xanthan gum P ideal for use in non or low-oil salad dressings (in order to mimic a fatty texture) as well as in end products with high concentrations of carbohydrates such as sugar. This grade also provides smooth flow even at high concentrations.
These effects are even more pronounced with our xanthan gum PP grade, which – compared to xanthan gum P – provides a further reduced pseudoplasticity.

ED (easily dispersible)   FED
FED is an easily dispersible type for food grade applications. It shows a completely different particle structure and therefore does not fall under any of our standard mesh size types. Easily dispersible xanthan gum is especially suited if no high-shear mixer is used for hydration. It allows an easy dispersion without the formation of lumps. Typical applications are instant products such as beverages and soups.

EDCS (clear solution, easy dispersible) FEDCS
Easily dispersible type as FED that additionally has been clarified (see CS grade below). Allows the preparation of transparent solutions.

DF (dust free)   FNDF, FFDF, FGDF
Dust free xanthan gum has been developed for processes and applications where dusting is a serious problem. The product is treated with ca. 1 % of edible oil. This treatment binds the smallest particles and eliminates dust formation almost completely.

CS (clear solution)   FNCS, FFCS, TNCS, TFCS, TGCS
Clear solution xanthan gum shows the same functional stabilizing properties as standard xanthan gum but allows the preparation of transparent solutions. Transparency is obtained by additional treatment to remove residual protein.

OC (oral care)   FN-OC, FF-OC, FNCS-OC, FFCS-OC
Oral care xanthan gum was specially designed for applications in a wide range of oral care products, such as toothpastes or mouthwashes. It shows similar features to the standard food and clear solution grades, respectively, but in addition has a higher degree of whiteness (powder colour), a lower total plate count (max. 500 cfu/g) and is free of cellulase activity.

PC (personal care)　　　　　　　FN-PC, FF-PC, FNCS-PC, FFCS-PC, FEDCS-PC,
　　　　　　　　　　　　　　　　　　　FNCSP-PC

Personal care xanthan gum can be used for a wide range of personal care applications. It shows similar features to the standard food and clear solution grades, respectively, but in addition is free of enzymatic activities such as amylases and cellulases and has a very low total plate count (max. 100 cfu/g). Personal care xanthan gum types are available in different particle sizes and as clear solution grade. A clear solution grade is also available as easily dispersible type (FEDCS-PC).
Moreover, a personal care xanthan gum type with reduced pseudoplasticity (FNCSP-PC) is available. The reduced pseudoplasticity makes xanthan gum FNCSP-PC ideal for use in products with high surfactant loading such as shower gels and shampoos.

AS (acid stable)　　　　　　　　TNAS, TNAS-CS

Acid stable xanthan gum for technical applications in high acid systems (pH < 2.5). This grade is also available as clear solution type (TNAS-CS).

RD (readily dispersible)　　　　TGRD

Easily dispersible product with delayed hydration and viscosity build-up for technical applications exclusively. A special chemical treatment leads to a delayed hydration effect in neutral or slightly acidic aqueous media. This provides easy dispersion while it prohibits the formation of lumps. The addition of alkali to increase the pH to 8 – 9 and above accelerates hydration of xanthan gum RD. Available only as technical grade.

CODING SYSTEM

Our coding system includes information on the quality, granulation and performance of the xanthan gum grade. In our coding system the first letter defines whether it is a food or technical grade and the last letters indicate personal and oral care quality:

　　　　　　　F　　=　　food quality
　　　　　　　T　　=　　technical quality
　　　　　　　PC　=　　personal care
　　　　　　　OC　=　　oral care

Please use the following example for an easy understanding of the coding:

　　　　　Xanthan Gum FNCSP-PC =
　　　　　　　　　　F̲ood
　　　　　　　　　　　N̲ormal granulation
　　　　　　　　　　　　C̲lear S̲olution
　　　　　　　　　　　　　　reduced P̲seudoplasticity
　　　　　　　　　　　　　　　-P̲ersonal C̲are

Jungbunzlauer Xanthan gum

Food, Oral Care, Personal Care, Feed and Pharmaceutical Grades "F"

Code	Particle Size	Viscosity (mPa·s)[1]	Description
FN	normal = 80 mesh	1400 – 1600	standard grade
FF	fine = 200 mesh	1400 – 1600	standard grade
FG	coarse = 45 mesh	1400 – 1600	standard grade
FNLD	low dust	1400 – 1600	low dust (LD)
FED	agglomerated	1300 – 1700	easily dispersible (ED)
FEDCS	agglomerated	1300 – 1700	easily dispersible (ED), clear solution (CS)
FNDF	normal = 80 mesh	1300 – 1700	dust free (DF)
FFDF	fine = 200 mesh	1300 – 1700	dust free (DF)
FGDF	coarse = 45 mesh	1300 – 1700	dust free (DF)
FNST	normal = 80 mesh	1300 – 1700 min. 1500[2]	salt tolerant (ST)
FFST	fine = 200 mesh	1300 – 1700 min. 195[3]	salt tolerant (ST)
FNP	normal = 80 mesh	1200 – 1600 500 – 900[2]	reduced pseudoplasticity (P)
FNPP	normal = 80 mesh	800 – 1400 max. 500[2]	reduced pseudoplasticity (PP)
FNCS	normal = 80 mesh	1300 – 1700	clear solution (CS)
FFCS	fine = 200 mesh	1300 – 1700	clear solution (CS)
FNCS-LD	low dust	1300 – 1700	clear solution (CS), low dust (LD)
FN-OC	normal = 80 mesh	1300 – 1700	oral care (OC)
FNCS-OC	normal = 80 mesh	1300 – 1700	oral care (OC), clear solution (CS)
FF-OC	fine = 200 mesh	1300 – 1700	oral care (OC)
FFCS-OC	fine = 200 mesh	1300 – 1700	oral care (OC), clear solution (CS)
FN-PC	normal = 80 mesh	1300 – 1700	personal care (PC)
FNCS-PC	normal = 80 mesh	1300 – 1700	personal care (PC), clear solution (CS)
FNCSP-PC	normal = 80 mesh	800 – 1400	personal care (PC), clear solution (CS), reduced pseudoplasticity (P)
FF-PC	fine = 200 mesh	1300 – 1700	personal care (PC)
FFCS-PC	fine = 200 mesh	1300 – 1700	personal care (PC), clear solution (CS)
FEDCS-PC	Agglomerated	1300 – 1700	personal care (PC), easily dispersible (ED), clear solution (CS)

Technical Grades "T"

Code	Particle Size	Viscosity (mPa·s)[1]	Description
TN	normal = 80 mesh	1400 – 1600	standard grade
TG	coarse = 45 mesh	1400 – 1600	standard grade
TF	fine = 200 mesh	1400 – 1600	standard grade
TNP	normal = 80 mesh	800 – 1400 600 – 900[2]	reduced pseudoplasticity (P)
TNCS	normal = 80 mesh	1300 – 2000	clear solution (CS)
TGCS	coarse = 45 mesh	1300 – 2000	clear solution (CS)
TFCS	fine = 200 mesh	1300 – 2000	clear solution (CS)
TNAS	normal = 80 mesh	1200 – 1800[2]	acid stable (AS)
TNAS-CS	normal = 80 mesh	1200 – 1800[2]	acid stable (AS), clear solution (CS)
TFST	fine = 200 mesh	1300 – 1700 min. 195[3]	salt tolerant (ST)
TGRD	coarse = 45 mesh	> 1700[4]	enhanced dispersibility and delayed hydration (RD)

1 Method according to FCC: 1 % xanthan gum in 1 % KCl solution, Brookfield LVTD, spindle 3, 60 rpm.
2 Inhouse method (LSV = low shear viscosity): 0.25% xanthan gum in STW (1g NaCl+0.15 g $CaCl_2$ / 1l distilled water) Brookfield LVTD, spindle 1, 3 rpm.
3 Inhouse method (NaCl-viscosity): 0.3% xanthan gum in 5% NaCl solution, Brookfield LVTD, spindle 2, 60 rpm.
4 Inhouse method: 0.3% xanthan gum in distilled water containing $CaCl_2$, Brookfield LVTD, spindle 2, 3 rpm.