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INTERNATIONAL UNION FOR THE PROTECTION OF NEW VARIETIES OF PLANTS

Geneva

DRAFT

CHINA ASTER *

UPOV Code: CALSP_CHI

Callistephus chinensis (L.) Nees

GUIDELINES

FOR THE CONDUCT OF TESTS

FOR DISTINCTNESS, UNIFORMITY AND STABILITY

prepared by an expert from Japan

to be considered by the

Technical Committee at its fifty-first session,
to be held in Geneva from March 23 to 25, 2015

Alternative Names:*

Botanical name	*English*	*French*	*German*	*Spanish*
Callistephus chinensis (L.) Nees	China Aster, Annual Aster	Aster, Aster de Chine, Reine-marguerite	Sommeraster	Aster de China

The purpose of these guidelines ("Test Guidelines") is to elaborate the principles contained in the General Introduction (document TG/1/3), and its associated TGP documents, into detailed practical guidance for the harmonized examination of distinctness, uniformity and stability (DUS) and, in particular, to identify appropriate characteristics for the examination of DUS and production of harmonized variety descriptions.

ASSOCIATED DOCUMENTS

These Test Guidelines should be read in conjunction with the General Introduction and its associated TGP documents.

* These names were correct at the time of the introduction of these Test Guidelines but may be revised or updated. [Readers are advised to consult the UPOV Code, which can be found on the UPOV Website (www.upov.int), for the latest information.]

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1. Subject of these Test Guidelines

These Test Guidelines apply to all varieties of *Callistephus chinensis* (L.) Nees.

2. Material Required

2.1 The competent authorities decide on the quantity and quality of the plant material required for testing the variety and when and where it is to be delivered. Applicants submitting material from a State other than that in which the testing takes place must ensure that all customs formalities and phytosanitary requirements are complied with.

2.2 The material is to be supplied in the form of seed.

2.3 The minimum quantity of plant material, to be supplied by the applicant, should be:

a sufficient quantity of seed to produce 40 plants.

The seed should meet the minimum requirements for germination, species and analytical purity, health and moisture content, specified by the competent authority. In cases where the seed is to be stored, the germination capacity should be as high as possible and should be stated by the applicant.

2.4 The plant material supplied should be visibly healthy, not lacking in vigor, nor affected by any important pest or disease.

2.5 The plant material should not have undergone any treatment which would affect the expression of the characteristics of the variety, unless the competent authorities allow or request such treatment. If it has been treated, full details of the treatment must be given.

3. Method of Examination

3.1 Number of Growing Cycles

The minimum duration of tests should normally be a single growing cycle.

3.2 Testing Place

Tests are normally conducted at one place. In the case of tests conducted at more than one place, guidance is provided in TGP/9 “Examining Distinctness”.

3.3 Conditions for Conducting the Examination

3.3.1 The tests should be carried out under conditions ensuring satisfactory growth for the expression of the relevant characteristics of the variety and for the conduct of the examination.

3.3.2 Because daylight varies, color determinations made against a color chart should be made either in a suitable cabinet providing artificial daylight or in the middle of the day in a room without direct sunlight. The spectral distribution of the illuminant for artificial daylight should conform with the CIE Standard of Preferred Daylight D 6500 and should fall within the tolerances set out in the British Standard 950, Part I. These determinations should be made with the plant part placed against a white background. The color chart and version used should be specified in the variety description.

3.4 Test Design

3.4.1 Each test should be designed to result in a total of at least 40 plants.

3.4.2 The design of the tests should be such that plants or parts of plants may be removed for measurement or counting without prejudice to the observations which must be made up to the end of the growing cycle.

3.5 Additional Tests

Additional tests, for examining relevant characteristics, may be established.

4. Assessment of Distinctness, Uniformity and Stability

4.1 Distinctness

4.1.1 General Recommendations

It is of particular importance for users of these Test Guidelines to consult the General Introduction prior to making decisions regarding distinctness. However, the following points are provided for elaboration or emphasis in these Test Guidelines.

4.1.2 Consistent Differences

The differences observed between varieties may be so clear that more than one growing cycle is not necessary. In addition, in some circumstances, the influence of the environment is not such that more than a single growing cycle is required to provide assurance that the differences observed between varieties are sufficiently consistent. One means of ensuring that a difference in a characteristic, observed in a growing trial, is sufficiently consistent is to examine the characteristic in at least two independent growing cycles.

4.1.3 Clear Differences

Determining whether a difference between two varieties is clear depends on many factors, and should consider, in particular, the type of expression of the characteristic being examined, i.e. whether it is expressed in a qualitative, quantitative, or pseudo-qualitative manner. Therefore, it is important that users of these Test Guidelines are familiar with the recommendations contained in the General Introduction prior to making decisions regarding distinctness.

4.1.4 Number of Plants / Parts of Plants to be Examined

Unless otherwise indicated, for the purposes of distinctness, all observations on single plants should be made on 20 plants or parts taken from each of 20 plants and any other observations made on all plants in the test, disregarding any off-type plants.

4.1.5 Method of Observation

The recommended method of observing the characteristic for the purposes of distinctness is indicated by the following key in the second column of the Table of Characteristics (see document TGP/9 “Examining Distinctness”, Section 4 “Observation of characteristics”):

MG: single measurement of a group of plants or parts of plants
MS: measurement of a number of individual plants or parts of plants
VG: visual assessment by a single observation of a group of plants or parts of plants
VS: visual assessment by observation of individual plants or parts of plants

Type of observation: visual (V) or measurement (M)

“Visual” observation (V) is an observation made on the basis of the expert’s judgment. For the purposes of this document, “visual” observation refers to the sensory observations of the experts and, therefore, also includes smell, taste and touch. Visual observation includes observations where the expert uses reference points (e.g. diagrams, example varieties, side-by-side comparison) or non-linear charts (e.g. color charts). Measurement (M) is an objective observation against a calibrated, linear scale e.g. using a ruler, weighing scales, colorimeter, dates, counts, etc.

Type of record: for a group of plants (G) or for single, individual plants (S)

For the purposes of distinctness, observations may be recorded as a single record for a group of plants or parts of plants (G), or may be recorded as records for a number of single, individual

plants or parts of plants (S). In most cases, “G” provides a single record per variety and it is not possible or necessary to apply statistical methods in a plant-by-plant analysis for the assessment of distinctness.

In cases where more than one method of observing the characteristic is indicated in the Table of Characteristics (e.g. VG/MG), guidance on selecting an appropriate method is provided in document TGP/9, Section 4.2.

4.2 Uniformity

4.2.1 It is of particular importance for users of these Test Guidelines to consult the General Introduction prior to making decisions regarding uniformity. However, the following points are provided for elaboration or emphasis in these Test Guidelines:

4.2.2 For the assessment of uniformity of mainly self-pollinated varieties, a population standard of 1% and acceptance probability of at least 95% should be applied. In the case of a sample size of 40 plants, 2 off-types are allowed.

4.2.3 The assessment of uniformity for hybrid varieties depends on the type of hybrid and should be according to the recommendations for hybrid varieties in the General Introduction.

4.3 Stability

4.3.1 In practice, it is not usual to perform tests of stability that produce results as certain as those of the testing of distinctness and uniformity. However, experience has demonstrated that, for many types of variety, when a variety has been shown to be uniform, it can also be considered to be stable.

4.3.2 Where appropriate, or in cases of doubt, stability may be further examined by testing a new seed stock to ensure that it exhibits the same characteristics as those shown by the initial material supplied.

4.3.3 Where appropriate, or in cases of doubt, the stability of a hybrid variety may, in addition to an examination of the hybrid variety itself, also be assessed by examination of the uniformity and stability of its parent lines.

5. Grouping of Varieties and Organization of the Growing Trial

5.1 The selection of varieties of common knowledge to be grown in the trial with the candidate varieties and the way in which these varieties are divided into groups to facilitate the assessment of distinctness are aided by the use of grouping characteristics.

5.2 Grouping characteristics are those in which the documented states of expression, even where produced at different locations, can be used, either individually or in combination with other such characteristics: (a) to select varieties of common knowledge that can be excluded from the growing trial used for examination of distinctness; and (b) to organize the growing trial so that similar varieties are grouped together.

5.3 The following have been agreed as useful grouping characteristics:

(a) Plant: height (characteristic 1)
(b) Flower head: type (characteristic 15)
(c) Flower head: diameter (characteristic 17)
(d) Outer ray floret: shape (characteristic 22)
(e) Outer ray floret: main color of inner side (characteristic 25) with the following groups:
Gr. 1: white
Gr. 2: yellow
Gr. 3: orange
Gr. 4: pink
Gr. 5: red
Gr. 6: purple
Gr. 7: violet
(f) Disc: type (characteristics 36)

5.4 Guidance for the use of grouping characteristics, in the process of examining distinctness, is provided through the General Introduction and document TGP/9 “Examining Distinctness”.

6. Introduction to the Table of Characteristics

6.1 Categories of Characteristics

6.1.1 Standard Test Guidelines Characteristics

Standard Test Guidelines characteristics are those which are approved by UPOV for examination of DUS and from which members of the Union can select those suitable for their particular circumstances.

6.1.2 Asterisked Characteristics

Asterisked characteristics (denoted by *) are those included in the Test Guidelines which are important for the international harmonization of variety descriptions and should always be examined for DUS and included in the variety description by all members of the Union, except when the state of expression of a preceding characteristic or regional environmental conditions render this inappropriate.

6.2 States of Expression and Corresponding Notes

6.2.1 States of expression are given for each characteristic to define the characteristic and to harmonize descriptions. Each state of expression is allocated a corresponding numerical note for ease of recording of data and for the production and exchange of the description.

6.2.2 In the case of qualitative and pseudo-qualitative characteristics (see Chapter 6.3), all relevant states of expression are presented in the characteristic. However, in the case of quantitative characteristics with 5 or more states, an abbreviated scale may be used to minimize the size of the Table of Characteristics. For example, in the case of a quantitative characteristic with 9 states, the presentation of states of expression in the Test Guidelines may be abbreviated as follows:

State	Note
small	3
medium	5
large	7

However, it should be noted that all of the following 9 states of expression exist to describe varieties and should be used as appropriate:

State	Note
very small	1
very small to small	2
small	3
small to medium	4
medium	5
medium to large	6
large	7
large to very large	8
very large	9

6.2.3 Further explanation of the presentation of states of expression and notes is provided in document TGP/7 “Development of Test Guidelines”.

6.3 Types of Expression

An explanation of the types of expression of characteristics (qualitative, quantitative and pseudo-qualitative) is provided in the General Introduction.

6.4 Example Varieties

Where appropriate, example varieties are provided to clarify the states of expression of each characteristic.

6.5 Legend

(*) Asterisked characteristic – see Chapter 6.1.2

QL Qualitative characteristic – see Chapter 6.3
QN Quantitative characteristic – see Chapter 6.3
PQ Pseudo-qualitative characteristic – see Chapter 6.3

MG, MS, VG, VS – see Chapter 4.1.5

(a)-(g) See Explanations on the Table of Characteristics in Chapter 8.1

(+) See Explanations on the Table of Characteristics in Chapter 8.2.

7. Table of Characteristics/Tableau des caractères/Merkmalstabelle/Tabla de caracteres

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
1. **(*)** **(+)**	**VG/ MS**	**Plant: height**	**Plante : hauteur**	**Pflanze: Höhe**	**Planta: altura**		
QN		short	basse	niedrig	baja	Gyokurei Rose	3
		medium	moyenne	mittel	media	Petit White	5
		tall	haute	hoch	alta	Sanhana Purple	7
2.	**VG/ MS**	**Plant: width**	**Plante : largeur**	**Pflanze: Breite**	**Planta: anchura**		
QN		narrow	étroite	schmal	estrecha	Sanhana Purple	3
		medium	moyenne	mittel	media	San Petit Purple	5
		broad	large	breit	ancha	Koma Purple	7
3. **(+)**	**VG/ MS**	**Plant: number of primary lateral shoots**	**Plante : nombre de rameaux latéraux primaires**	**Pflanze: Anzahl primärer Seitentriebe**	**Planta: número de ramas laterales primarias**		
QN		few	petit	gering	bajo	Fukuhogyoku	3
		medium	moyen	mittel	medio	Ariake Murasaki	5
		many	grand	groß	alto	Chikuma Aka	7
4. **(+)**	**VG/ MS**	**Plant: number of secondary lateral shoots**	**Plante : nombre de rameaux latéraux secondaires**	**Pflanze: Anzahl sekundärer Seitentriebe**	**Planta: número de ramas laterales secundarias**		
QN		few	petit	gering	bajo	Fukuhogyoku	3
		medium	moyen	mittel	medio	Shigyoku	5
		many	grand	groß	alto	Chikuma Aka	7
5. **(+)**	**VG**	**Plant: distribution of primary lateral shoots**	**Plante : distribution des rameaux latéraux primaires**	**Pflanze: Verteilung der primären Seitentriebe**	**Planta: distribución de las ramas laterales primarias**		
PQ		mainly on lower part	principalement sur la partie inférieure	hauptsächlich im unteren Teil	principalmente en la parte inferior	Siena Pink	1
		throughout	régulièrement	überall	en la totalidad	Stellar Blue	2
		mainly on upper part	principalement sur la partie supérieure	hauptsächlich im oberen Teil	principalmente en la parte superior	Chikuma Light Pink	3
6. **(+)**	**VG/ MS**	**Stem: number of nodes**	**Tige : nombre de nœuds**	**Trieb: Anzahl Nodien**	**Tallo: número de nudos**		
QN		few	petit	gering	bajo	Fukunohikari	3
		medium	moyen	mittel	medio	Petit Scarlet	5
		many	grand	groß	alto	Sanhana Purple	7
7. **(*)**	**VG**	**Stem: anthocyanin coloration**	**Tige : pigmentation anthocyanique**	**Trieb: Anthocyanfärbung**	**Tallo: pigmentación antociánica**		
QN		absent or very weak	absente ou très faible	fehlend oder sehr gering	ausente o muy débil	Ariake Shiro	1
		weak	faible	gering	débil	Fukuyo	2
		medium	moyenne	mittel	media	Shigyoku	3
		strong	forte	stark	fuerte	Aoitori	4

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
8.	**VG/ MS**	**Primary lateral shoot: length**	**Rameau latéral primaire : longueur**	**Primärer Seitentrieb: Länge**	**Rama lateral primaria: longitud**		
QN	**(a)**	short	court	kurz	corta	Mochizuki Blue	3
		medium	moyen	mittel	media	Siena Pink	5
		long	long	lang	larga	Koma Pink	7
9. **(+)**	**VG**	**Primary lateral shoot: angle in relation to stem**	**Rameau latéral primaire : angle par rapport à la tige**	**Primärer Seitentrieb: Winkel zum Trieb**	**Rama lateral primaria: ángulo en relación con el tallo**		
QN	**(a)**	small	petit	klein	pequeño	Sanhana Purple	1
		medium	moyen	mittel	mediano	Stellar Red	3
		large	grand	groß	grande	San Petit Purple	5
10. **(+)**	**VG/ MS**	**Petiole: length**	**Pétiole : longueur**	**Blattstiel: Länge**	**Pecíolo: longitud**		
QN	**(b)**	short	court	kurz	corto	Chikuma Light Blue	3
		medium	moyen	mittel	medio	Siena Carmine Red	5
		long	long	lang	largo	Matsumoto Top Rose	7
11. **(*)** **(+)**	**VG/ MS**	**Leaf blade: length**	**Limbe : longueur**	**Blattspreite: Länge**	**Limbo: longitud**		
QN	**(b)**	short	court	kurz	corto	Fukunohikari	3
		medium	moyen	mittel	medio	Stellar Red	5
		long	long	lang	largo	Koma Purple	7
12. **(*)** **(+)**	**VG/ MS**	**Leaf blade: width**	**Limbe : largeur**	**Blattspreite: Breite**	**Limbo: anchura**		
QN	**(b)**	narrow	étroit	schmal	estrecho	Fukunohikari	3
		medium	moyen	mittel	medio	Stellar Blue	5
		broad	large	breit	ancho	Stellar Red	7
13. **(+)**	**VG/ MS**	**Leaf blade: ratio length/width**	**Limbe : rapport longueur/largeur**	**Blattspreite: Verhältnis Länge/Breite**	**Limbo: relación longitud/anchura**		
QN	**(b)**	low	faible	klein	baja	Siena Light Blue	3
		medium	moyen	mittel	media	Fukunokagayaki	5
		high	élevé	groß	alta	Stellar Red	7
14.	**VG**	**Leaf blade: intensity of green color**	**Limbe : intensité de la couleur verte**	**Blattspreite: Intensität der Grünfärbung**	**Limbo: intensidad del color verde**		
QN	**(b)**	light	claire	hell	claro	Matsumoto Mid Blue	1
		medium	moyenne	mittel	medio	Ariake Shiro, Kurenai	2
		dark	foncée	dunkel	oscuro	Athena Purple Flash	3

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
15. (*) (+)	**VG**	**Flower head: type**	**Capitule : type**	**Blütenstand: Typ**	**Capítulo: tipo**		
QL	**(c)**	without ray floret	sans fleur ligulée	ohne Zungenblüten	sin lígulas	Hulk	1
		single	simple	einfach	simple	Siena Pink	2
		double	double	gefüllt	doble	Miss Europe, Stellar Blue	3
16. (*)	**VG/ MS**	**Flower head: number of ray florets**	**Capitule : nombre de fleurs ligulées**	**Blütenstand: Anzahl Zungenblüten**	**Capítulo: número de lígulas**		
QN	**(c)**	few	petit	gering	bajo	Stellar Carmine	3
		medium	moyen	mittel	medio	SAKAST045	5
		many	grand	groß	alto	Racy Rose Red	7
17. (*)	**VG/ MS**	**Flower head: diameter**	**Capitule : diamètre**	**Blütenstand: Durchmesser**	**Capítulo: diámetro**		
QN	**(c)**	small	petit	klein	pequeño	Stellar Red	3
		medium	moyen	mittel	medio	Fukunokagayaki	5
		large	grand	groß	grande	Koma Pink	7
18. (*) (+)	**VG/ MS**	**Flower head: height**	**Capitule : hauteur**	**Blütenstand: Höhe**	**Capítulo: altura**		
QN	**(c)**	short	basse	kurz	corto	Stellar Carmine	3
		medium	moyenne	mittel	medio	SAKAST044	5
		tall	haute	hoch	alto	Racy Rose Red	7
19. (*)	**VG/ MS**	**Outer ray floret: length**	**Fleur ligulée externe : longueur**	**Äußere Zungenblüte: Länge**	**Lígula exterior: longitud**		
QN	**(c)**	short	courte	kurz	corta	Stellar Carmine	3
	(e)	medium	moyenne	mittel	media	Siena Light Blue	5
		long	longue	lang	larga	Racy Rose Red	7
20. (*)	**VG/ MS**	**Outer ray floret: width**	**Fleur ligulée externe : largeur**	**Äußere Zungenblüte: Breite**	**Lígula exterior: anchura**		
QN	**(c)**	narrow	étroite	schmal	estrecha	SAKAST042	3
	(e)	medium	moyenne	mittel	media	Fukunohikari	5
		broad	large	breit	ancha	Koma Pink	7
21. (+)	**VG/ MS**	**Outer ray floret: ratio length/width**	**Fleur ligulée externe : rapport longueur/largeur**	**Äußere Zungenblüte: Verhältnis Länge/Breite**	**Lígula exterior: relación longitud/anchura**		
QN	**(c)**	low	bas	klein	baja	Fukunokagayaki	3
	(e)	medium	moyen	mittel	media	Stellar Carmine	5
		high	élevé	groß	alta	Racy Rose Red	7
22. (*) (+)	**VG**	**Outer ray floret: shape**	**Fleur ligulée externe : forme**	**Äußere Zungenblüte: Form**	**Lígula exterior: forma**		
PQ	**(c)**	ligulate	ligulée	zungenförmig	ligulada		1
	(e)	spatulate	spatulée	spatelförmig	espatulada		2
		tubular	tubulaire	röhrenförmig	tubular		3

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
23. **(*)** **(+)**	**VG**	**Outer ray floret: curvature of longitudinal axis**	**Fleur ligulée externe : courbure de l'axe longitudinal**	**Äußere Zungenblüte: Biegung der Längsachse**	**Lígula exterior: curvatura del eje longitudinal**		
QN	**(c)**	incurved	incurvé	aufgebogen	incurvado		1
	(e)	straight	droit	gerade	recto		2
		recurved	recourbé	zurückgebogen	recurvado		3
24. **(*)** **(+)**	**VG**	**Outer ray floret: profile in cross section**	**Fleur ligulée externe : profil en section transversale**	**Äußere Zungenblüte: Profil im Querschnitt**	**Lígula exterior: perfil en sección transversal**		
PQ	**(c)**	concave	concave	konkav	cóncavo		1
	(e)	flat	plat	flach	plano		2
		convex	convexe	konvex	convexo		3
		oblong	oblong	breitrund	oblongo		4
		circular	circulaire	kreisförmig	circular		5
		rhombic	losangique	rhombisch	rómbico		6
25. **(*)**	**VG**	**Outer ray floret: main color of inner side**	**Fleur ligulée externe : couleur principale de la face interne**	**Äußere Zungenblüte: Hauptfarbe der Innenseite**	**Lígula exterior: color principal de la cara interna**		
PQ	**(c)** **(e)** **(g)**	RHS Colour Chart (indicate reference number)	Code RHS des couleurs (indiquer le numéro de référence)	RHS-Farbkarte (Nummer angeben)	Carta de colores RHS (indíquese el número de referencia)		
26. **(*)**	**VG**	**Outer ray floret: secondary color of inner side**	**Fleur ligulée externe : couleur secondaire de la face interne**	**Äußere Zungenblüte: Sekundärfarbe der Innenseite**	**Lígula exterior: color secundario de la cara interna**		
PQ	**(c)** **(e)** **(g)**	RHS Colour Chart (indicate reference number)	Code RHS des couleurs (indiquer le numéro de référence)	RHS-Farbkarte (Nummer angeben)	Carta de colores RHS (indíquese el número de referencia)		
27. **(+)**	**VG**	**Outer ray floret: distribution of secondary color of inner side**	**Fleur ligulée externe : distribution de la couleur secondaire de la face interne**	**Äußere Zungenblüte: Verteilung der Sekundärfarbe der Innenseite**	**Lígula exterior: distribución del color secundario de la cara interna**		
PQ	**(c)**	none	aucune	keine	ninguno		1
	(e)	basal part	partie basale	im basalen Teil	en la parte basal		2
	(g)	apical part	partie apicale	im apikalen Teil	en la parte apical		3
		on margin	au bord	am Rand	en el borde		4
		central bar	barre centrale	als Mittelstreifen	franja central		5
28.	**VG**	**Outer ray floret: main color of outer side**	**Fleur ligulée externe : couleur principale de la face externe**	**Äußere Zungenblüte: Hauptfarbe der Außenseite**	**Lígula exterior: color principal de la cara externa**		
PQ	**(c)** **(e)** **(g)**	RHS Colour Chart (indicate reference number)	Code RHS des couleurs (indiquer le numéro de référence)	RHS-Farbkarte (Nummer angeben)	Carta de colores RHS (indíquese el número de referencia)		

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
29. **(*)** **(+)**	**VG**	**Only varieties with: flower head: type: double: Inner ray floret: shape**	**Seulement variétés avec capitule : type : double : Fleur ligulée interne : forme**	**Nur Sorten mit Blütenstand: Typ: gefüllt: Innere Zungenblüte: Form**	**Solo las variedades con: capítulo: tipo: doble: Lígula interior: forma**		
PQ	**(c)**	ligulate	ligulée	zungenförmig	ligulada		1
	(f)	spatulate	spatulée	spatelförmig	espatulada		2
		tubular	tubulaire	röhrenförmig	tubular		3
30. **(*)** **(+)**	**VG**	**Only varieties with: flower head: type: double: Inner ray floret: curvature of longitudinal axis**	**Seulement variétés avec capitule : type : double : Fleur ligulée interne : courbure de l'axe longitudinal**	**Nur Sorten mit Blütenstand: Typ: gefüllt: Innere Zungenblüte: Biegung der Längsachse**	**Solo las variedades con: capítulo: tipo: doble: Lígula interior: curvatura del eje longitudinal**		
QN	**(c)**	incurved	incurvé	aufgebogen	incurvado		1
	(f)	straight	droit	gerade	recto		2
		recurved	recourbé	zurückgebogen	recurvado		3
31. **(*)** **(+)**	**VG**	**Only varieties with: flower head: type: double: Inner ray floret: profile in cross section**	**Seulement variétés avec capitule: type : double: Fleur ligulée interne : profil en section transversale**	**Nur Sorten mit Blütenstand: Typ: gefüllt: Innere Zungenblüte: Profil im Querschnitt**	**Solo las variedades con tipo de capítulo: tipo: doble: Lígula interior: perfil en sección transversal**		
PQ	**(c)**	concave	concave	konkav	cóncavo		1
	(f)	flat	plat	flach	plano		2
		convex	convexe	konvex	convexo		3
		oblong	oblong	rechteckig	oblongo		4
		circular	circulaire	kreisförmig	circular		5
		rhombic	losangique	rhombisch	rómbico		6
32. **(*)**	**VG**	**Only varieties with: flower head: type: double: Inner ray floret: main color of inner side**	**Seulement variétés avec capitule : type : double : Fleur ligulée interne : couleur principale de la face interne**	**Nur Sorten mit Blütenstand: Typ: gefüllt: Innere Zungenblüte: Hauptfarbe der Innenseite**	**Solo las variedades con: capítulo: tipo: doble: Lígula interior: color principal de la cara interna**		
PQ	**(c)** **(f)** **(g)**	RHS Colour Chart (indicate reference number)	Code RHS des couleurs (indiquer le numéro de référence)	RHS-Farbkarte (Nummer angeben)	Carta de colores RHS (indíquese el número de referencia)		
33. **(*)**	**VG**	**Only varieties with: flower head: type: double: Inner ray floret: secondary color of inner side**	**Seulement variétés avec capitule : type : double : Fleur ligulée interne : couleur secondaire de la face interne**	**Nur Sorten mit Blütenstand: Typ: gefüllt: Innere Zungenblüte: Sekundärfarbe der Innenseite**	**Solo las variedades con: capítulo: tipo: doble: Lígula interior: color secundario de la cara interna**		
PQ	**(c)** **(f)** **(g)**	RHS Colour Chart (indicate reference number)	Code RHS des couleurs (indiquer le numéro de référence)	RHS-Farbkarte (Nummer angeben)	Carta de colores RHS (indíquese el número de referencia)		

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
34. **(+)**	**VG**	**Only varieties with: flower head: type: double: Inner ray floret: distribution of secondary color of inner side**	**Seulement variétés avec capitule: type: double: Fleur ligulée interne : distribution de la couleur secondaire de la face interne**	**Nur Sorten mit Blütenstand: Typ: gefüllt: Innere Zungenblüte: Verteilung der Sekundärfarbe der Innenseite**	**Solo las variedades con: capítulo: tipo: doble: Lígula interior: distribución del color secundario de la cara interna**		
PQ	**(c)**	none	aucune	keine	ninguno		1
	(f)	basal part	partie basale	im basalen Teil	en la parte basal		2
	(g)	apical part	partie apicale	im apikalen Teil	en la parte apical		3
		on margin	au bord	am Rand	en el borde		4
		central bar	barre centrale	als Mittelstreifen	franja central		5
35.	**VG**	**Only varieties with: flower head: type: double: Inner ray floret: main color of outer side**	**Seulement variétés avec capitule: type: double: Fleur ligulée interne : couleur principale de la face externe**	**Nur Sorten mit Blütenstand: Typ: gefüllt: Innere Zungenblüte: Hauptfarbe der Außenseite**	**Solo las variedades con: capítulo: tipo: doble: Lígula interior: color principal de la cara externa**		
PQ	**(c)** **(f)** **(g)**	RHS Colour Chart (indicate reference number)	Code RHS des couleurs (indiquer le numéro de référence)	RHS-Farbkarte (Nummer angeben)	Carta de colores RHS (indíquese el número de referencia)		
36. **(*)** **(+)**	**VG**	**Disc: type**	**Disque: type**	**Scheibe: Typ**	**Disc: tipo**		
QL	**(c)**	daisy	marguerite	margaritenförmig	margarita	Siena Pink	1
	(d)	anemone	anémone	anemonenförmig	anémona	Chikuma Siro	2
37. **(*)** **(+)**	**VG/ MS**	**Disc: diameter**	**Disque : diamètre**	**Scheibe: Durchmesser**	**Disco: diámetro**		
QN	**(c)**	very small	très petit	sehr klein	muy pequeño		1
	(d)	small	petit	klein	pequeño	Stellar Carmine	2
		medium	moyen	mittel	mediano	Umenomai	3
		large	grand	groß	grande	Kairyo Kurenai	4
		very large	très grand	sehr groß	muy grande		5
38. **(+)**	**VG**	**Disc: color of central part**	**Disque : couleur de la partie centrale**	**Scheibe: Farbe des Mittelteils**	**Disco: color de la parte central**		
PQ	**(c)**	white	blanc	weiß	blanco		1
	(d)	yellow	jaune	gelb	amarillo	Stellar Blue	2
		yellowish green	vert jaunâtre	gelblich grün	verde amarillento	Petit Fancy Pink	3
		green	vert	grün	verde		4
39. **(+)**	**VG**	**Disc floret: color**	**Fleuron discal : couleur**	**Scheibenblüte: Farbe**	**Flósculo del disco: color**		
PQ	**(c)** **(d)**	RHS Colour Chart (indicate reference number)	Code RHS des couleurs (indiquer le numéro de référence)	RHS-Farbkarte (Nummer angeben)	Carta de colores RHS (indíquese el número de referencia)		

		English	français	deutsch	español	Example Varieties Exemples Beispielssorten Variedades ejemplo	Note/ Nota
40. (*) (+)	**VG/ MS**	**Involucre: diameter**	**Involucre : diamètre**	**Blütenhülle: Durchmesser**	**Involucro: diámetro**		
QN	**(c)**	small	petit	klein	pequeño	Sanhana Purple	3
		medium	moyen	mittel	mediano	Stellar Carmine	5
		large	grand	groß	grande	Chikuma Light Pink	7
41. (+)	**VG/ MS**	**Involucre: size in relation to flower head diameter**	**Involucre : taille par rapport au diamètre du capitule**	**Blütenhülle: Größe im Verhältnis zum Durchmesser des Blütenstandes**	**Involucro: tamaño en relación con el diámetro del capítulo**		
QN	**(c)**	smaller	plus petit	kleiner	más pequeño	Taiyo	1
		same	égal	gleich groß	igual	Fukuhogyoku	2
		larger	plus grand	größer	más grande	Chikuma Light Pink	3
42. (+)	**VG/ MG**	**Time of beginning of flowering**	**Époque de début de la floraison**	**Zeitpunkt des Blühbeginns**	**Época de comienzo de la floración**		
QN		early	précoce	früh	temprana	Athena Scarlet	3
		medium	moyenne	mittel	media	Stellar Blue	5
		late	tardive	spät	tardía	Chikuma Light Pink	7

8. Explanations on the Table of Characteristics

8.1 Explanations covering several characteristics

Unless otherwise indicated below, all characteristics should be recorded at the time of full flowering. Characteristics containing the following key in the second column of the Table of Characteristics should be examined as indicated below:

(a) Observations on the primary lateral shoots should be made on the longest primary lateral shoots.

(b) Observations on the petiole and the leaf blade should be made on the upper side of fully developed typical leaves of the longest primary lateral shoots.

(c) Observations on the flower head should be made on the typical terminal flower heads.

(d) Observations on the disc should be made when the anthers in outer 3-4 rows of the disc floret have dehisced.

(e) The ray florets in the outermost row should be observed.

(f) The inner ray florets should be observed when the inner ray florets are different from the outer most row.

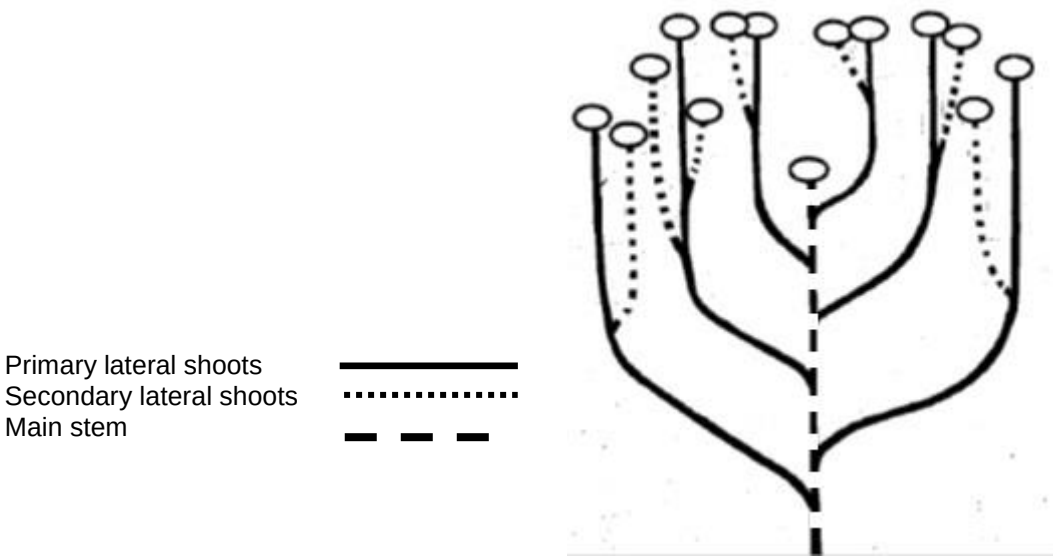
(g) The main color is the color with the largest surface area, the secondary color is the color with the second largest surface area. In cases where the areas of the main and secondary color are too similar to reliably decide which color has the largest area, the darkest color is considered to be the main color.

8.2 Explanations for individual characteristics

Ad. 1: Plant: height

Plant height should be observed from the ground to the top of the plant, including inflorescence.

Ad. 3: Plant: number of primary lateral shoots
Ad. 4: Plant: number of secondary lateral shoots



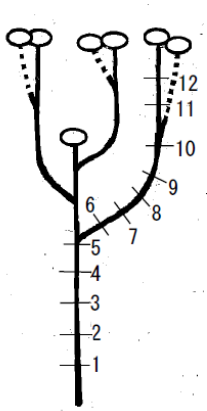
Ad. 5: Plant: distribution of primary lateral shoots

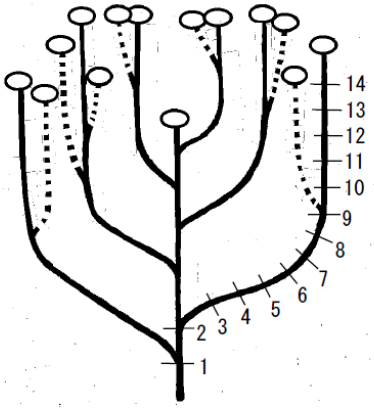
1
mainly on lower part

2
throughout

3
mainly on upper part

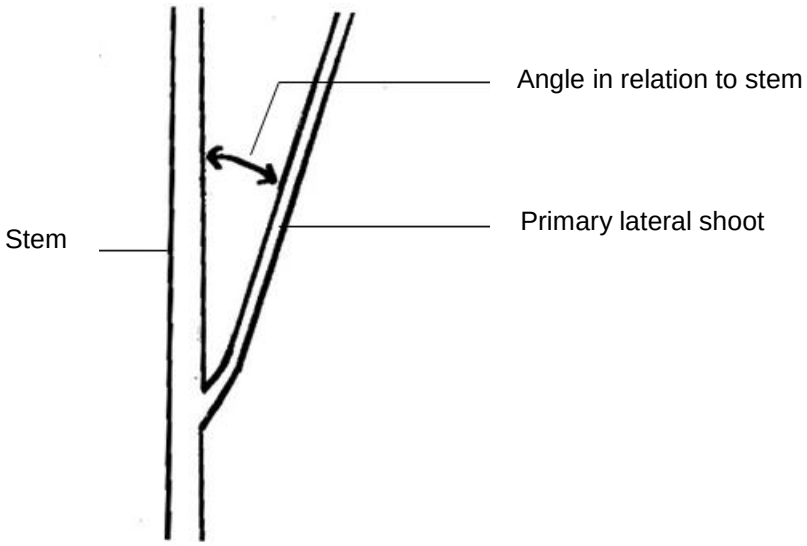
Ad. 6: Stem: number of nodes



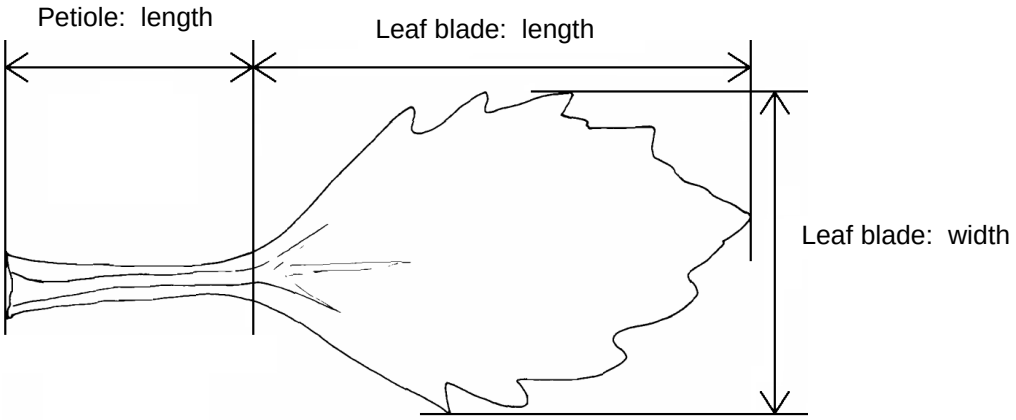


Number of nodes should be observed from the ground up to the top of the longest primary lateral shoots.

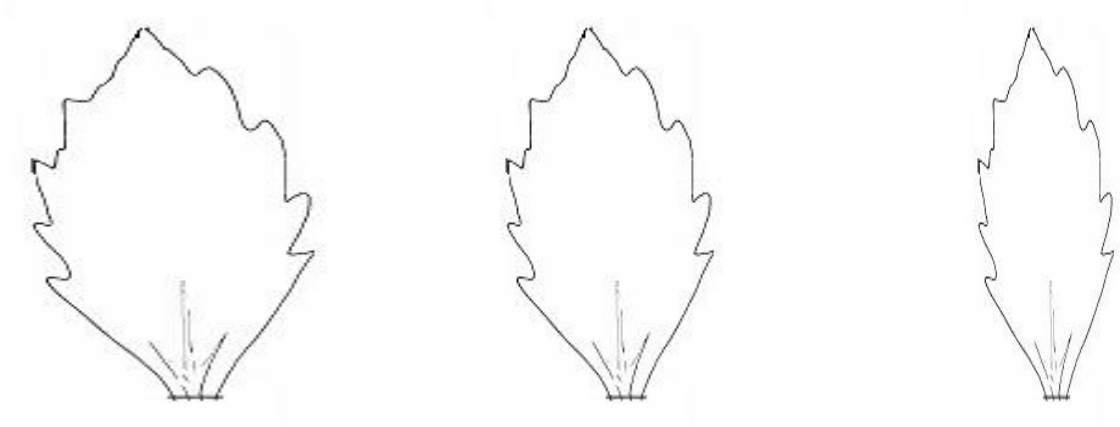
Ad. 9: Primary lateral shoot: angle in relation to stem



Ad. 10: Petiole: length
Ad. 11: Leaf blade: length
Ad. 12: Leaf blade: width



Ad.13: Leaf blade: ratio length/width



3	5	7
low	medium	high

Ad. 15: Flower head: type

1
without ray floret

2
single

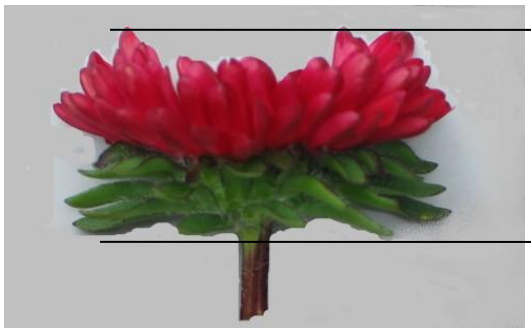
3
double

1: without ray floret flower heads with no ray floret.

2: single flower heads with one row of ray florets.

3: double flower heads with more than one row of ray florets.

Ad. 18: Flower head: height



Ad. 21: Outer ray floret : ratio length/ width

3
low

5
medium

7
high

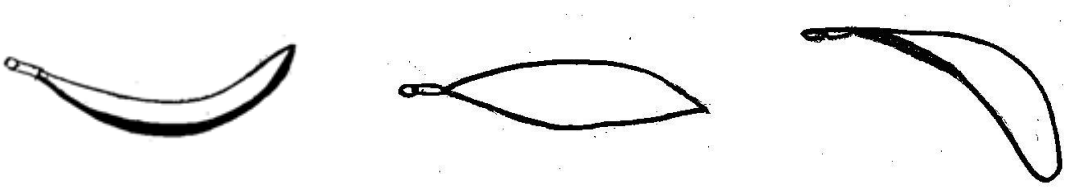
Ad. 22: Outer ray floret: shape
Ad. 29: Only varieties with flower head: type: double: Inner ray floret: shape

1
ligulate

2
spatulate

3
tubular

Ad. 23: Outer ray floret: curvature of longitudinal axis
Ad. 30: Only varieties with flower head: type: double: Inner ray floret: curvature of longitudinal axis



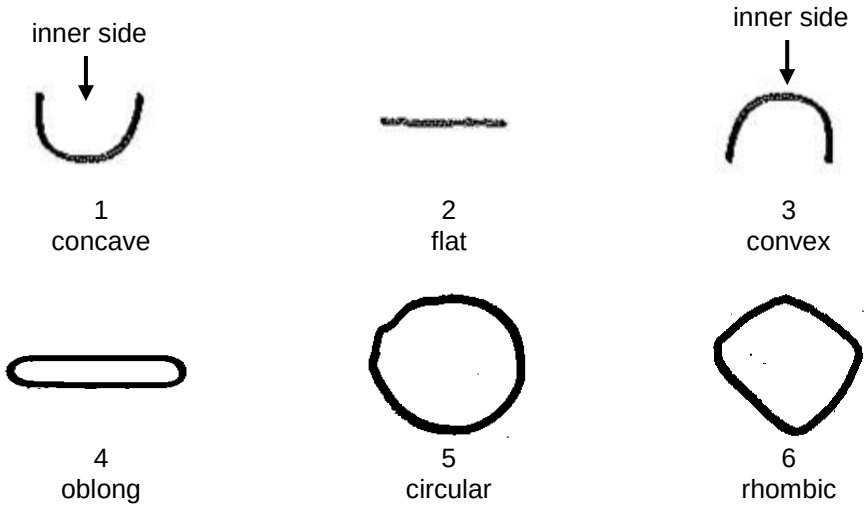
1
incurved

2
straight

3
recurved

Ad. 24: Outer ray floret: profile in cross section
Ad. 31: Only varieties with flower head: type: double: Inner ray floret: profile in cross section

Observations should be made at the widest part of the ray florets.



1
concave

2
flat

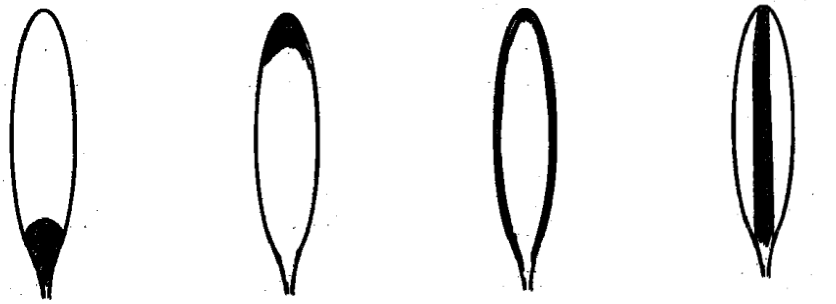
3
convex

4
oblong

5
circular

6
rhombic

Ad. 27: Outer ray floret: distribution of secondary color of inner side
Ad. 34: Only varieties with flower head: type: double: Inner ray floret: distribution of secondary color of inner side



2
basal part

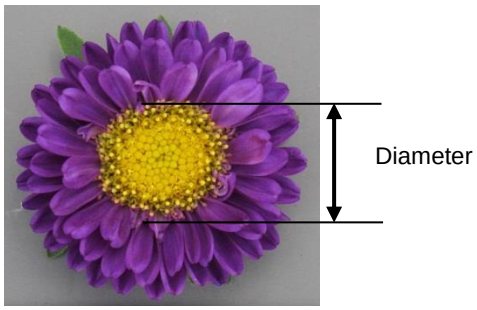
3
apical part

4
on margin

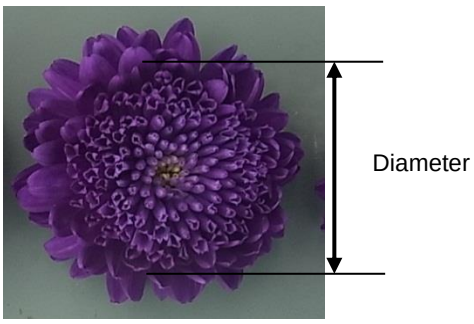
5
central bar

Ad. 36: Disc: type
Ad. 37: Disc: diameter

Anemone type discs have large petaloid or tubular florets.
Daisy type discs have small florets.



1
daisy



2
anemone

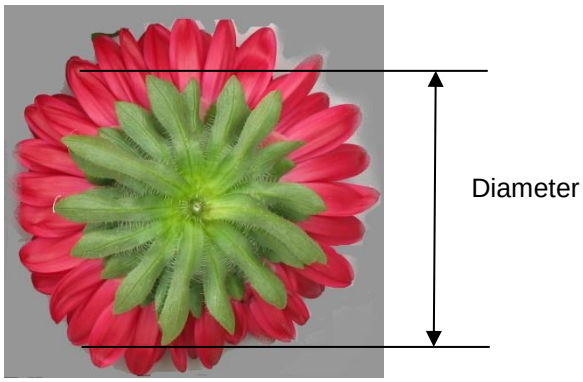
Ad. 38: Disc: color of central part

Observations on the disc should be made on the central part excluding the outer 3-4 rows with anthers dehisced.

Ad. 39: Disc floret: color

Observations should be made on outer three/four rows of disc florets.

Ad. 40: Involucre: diameter



Ad. 41: Involucre: size in relation to flower head diameter

1
smaller

2
same

3
larger

Ad. 42: Time of beginning of flowering

Time of beginning of flowering is when the first flower head has fully opened on 50% of the plants.

9. Literature

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Inoue, Y, et al., 1982: Encyclopedia of Horticulture. Seibundo shinkosha. Tokyo, JP, vol.3, pp.17-18

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Wit, F. 1937: Contributions to the Genetics of the China Aster, Genetica, Springer, vol.19, no.1-3, pp1-104

10. Technical Questionnaire

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

	Application date: (not to be filled in by the applicant)

TECHNICAL QUESTIONNAIRE
to be completed in connection with an application for plant breeders' rights

1. Subject of the Technical Questionnaire

1.1 Botanical name	*Callistephus chinensis* (L.) Nees
1.2 Common name	China Aster

2. Applicant

Name	
Address	
Telephone No.	
Fax No.	
E-mail address	
Breeder (if different from applicant)	

3. Proposed denomination and breeder's reference

Proposed denomination (if available)	
Breeder's reference	

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

[#]4. Information on the breeding scheme and propagation of the variety

4.1 Breeding scheme

Variety resulting from:

4.1.1 Crossing

(a) controlled cross [ ]
(please state parent varieties)

(……..……..…) x (……..……..…)
female parent male parent

(b) partially known cross [ ]
(please state known parent variety(ies))

(……..……..…) x (……..……..…)
female parent male parent

(c) unknown cross [ ]

4.1.2 Mutation [ ]
(please state parent variety)

4.1.3 Discovery and development [ ]
(please state where and when discovered and how developed)

4.1.4 Other [ ]
(please provide details)

[#] Authorities may allow certain of this information to be provided in a confidential section of the Technical Questionnaire.

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

4.2 Method of propagating the variety

4.2.1 Seed-propagated varieties

(a) Self-pollination [ ]
(b) Cross-pollination
(i) population [ ]
(ii) synthetic variety [ ]
(c) Hybrid [ ]
(d) Other [ ]
(please provide details)

4.2.2 Vegetatively propagated varieties

(a) cuttings [ ]

(b) *in vitro* propagation [ ]

(c) other (state method) [ ]

4.2.3 Other [ ]
(please provide details)

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

5. Characteristics of the variety to be indicated (the number in brackets refers to the corresponding characteristic in Test Guidelines; please mark the note which best corresponds).

	Characteristics	Example Varieties	Note
5.1 (1)	**Plant: height**		
	very short		1[ ]
	very short to short		2[ ]
	short	Gyokurei Rose	3[ ]
	short to medium		4[ ]
	medium	Petit White	5[ ]
	medium to tall		6[ ]
	tall	Sanhana Purple	7[ ]
	tall to very tall		8[ ]
	very tall		9[ ]
5.2 (15)	**Flower head: type**		
	without ray floret	Hulk	1[ ]
	single	Siena Pink	2[ ]
	double	Miss Europe, Stellar Blue	3[ ]
5.3 (17)	**Flower head: diameter**		
	very small		1[ ]
	very small to small		2[ ]
	small	Stellar Red	3[ ]
	small to medium		4[ ]
	medium	Fukunokagayaki	5[ ]
	medium to large		6[ ]
	large	Koma Pink	7[ ]
	large to very large		8[ ]
	very large		9[ ]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

	Characteristics	Example Varieties	Note
5.4 (22)	**Outer ray floret: shape**		
	ligulate		1[ ]
	spatulate		2[ ]
	tubular		3[ ]
5.5i (25)	**Outer ray floret: main color of inner side**		
	RHS Colour Chart (indicate reference number)	…….……	
5.5ii (25)	**Outer ray floret: main color of inner side**		
	white		1[ ]
	yellow		2[ ]
	orange		3[ ]
	pink		4[ ]
	red		5[ ]
	purple		6[ ]
	violet		7[ ]
5.6 (36)	**Disc: type**		
	daisy	Siena Pink	1[ ]
	anemone	Chikuma Siro	2[ ]

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

6. Similar varieties and differences from these varieties

Please use the following table and box for comments to provide information on how your candidate variety differs from the variety (or varieties) which, to the best of your knowledge, is (or are) most similar. This information may help the examination authority to conduct its examination of distinctness in a more efficient way.

Denomination(s) of variety(ies) similar to your candidate variety	Characteristic(s) in which your candidate variety differs from the similar variety(ies)	Describe the expression of the characteristic(s) for the **similar** variety(ies)	Describe the expression of the characteristic(s) for **your** candidate variety
Example	*Flower head: type*	*single*	*double*

Comments:

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

[#]7. Additional information which may help in the examination of the variety

7.1 In addition to the information provided in sections 5 and 6, are there any additional characteristics which may help to distinguish the variety?

Yes [ ] No [ ]

(If yes, please provide details)

7.2 Are there any special conditions for growing the variety or conducting the examination?

Yes [ ] No [ ]

(If yes, please provide details)

7.3 Other information

7.3.1 Main use

(a) garden plant [ ]
(b) pot plant [ ]
(c) cut-flower [ ]
(d) other [ ]
(please provide details)

7.3.2 A representative color image of the variety should accompany the Technical Questionnaire.

8. Authorization for release

(a) Does the variety require prior authorization for release under legislation concerning the protection of the environment, human and animal health?

Yes [ ] No [ ]

(b) Has such authorization been obtained?

Yes [ ] No [ ]

If the answer to (b) is yes, please attach a copy of the authorization.

[#] Authorities may allow certain of this information to be provided in a confidential section of the Technical Questionnaire.

TECHNICAL QUESTIONNAIRE	Page {x} of {y}	Reference Number:

9. Information on plant material to be examined or submitted for examination.

9.1 The expression of a characteristic or several characteristics of a variety may be affected by factors, such as pests and disease, chemical treatment (e.g. growth retardants or pesticides), effects of tissue culture, different rootstocks, scions taken from different growth phases of a tree, etc.

9.2 The plant material should not have undergone any treatment which would affect the expression of the characteristics of the variety, unless the competent authorities allow or request such treatment. If the plant material has undergone such treatment, full details of the treatment must be given. In this respect, please indicate below, to the best of your knowledge, if the plant material to be examined has been subjected to:

(a)	Microorganisms (e.g. virus, bacteria, phytoplasma)	Yes [ ]	No [ ]
(b)	Chemical treatment (e.g. growth retardant, pesticide)	Yes [ ]	No [ ]
(c)	Tissue culture	Yes [ ]	No [ ]
(d)	Other factors	Yes [ ]	No [ ]

Please provide details for where you have indicated “yes”.

……

10. I hereby declare that, to the best of my knowledge, the information provided in this form is correct:

Applicant’s name

Signature Date

[End of document]