European Commission

Combined Draft Renewal Assessment Report prepared according to Regulation (EC) N° 1107/2009
and
Proposal for Harmonised Classification and Labelling (CLH Report) according to Regulation (EC) N° 1272/2008

Glyphosate

Volume 3 – B.2 (AS)

Rapporteur Member State: Assessment Group on Glyphosate (AGG) consisting of FR, HU, NL and SE

Version History

When	What
2021/06	Initial RAR

The RMS is the author of the Assessment Report. The Assessment Report is based on the validation by the RMS, and the verification during the EFSA peer-review process, of the information submitted by the Applicant in the dossier, including the Applicant's assessments provided in the summary dossier. As a consequence, data and information including assessments and conclusions, validated and verified by the RMS experts, may be taken from the applicant's (summary) dossier and included as such or adapted/modified by the RMS in the Assessment Report. For reasons of efficiency, the Assessment Report should include the information validated/verified by the RMS, without detailing which elements have been taken or modified from the Applicant's assessment. As the Applicant's summary dossier is published, the experts, interested parties, and the public may compare both documents for getting details on which elements of the Applicant's dossier have been validated/verified and which ones have been modified by the RMS. Nevertheless, the views and conclusions of the RMS should always be clearly and transparently reported; the conclusions from the applicant should be included as an Applicant's statement for every single study reported at study level; and the RMS should justify the final assessment for each endpoint in all cases, indicating in a clear way the Applicant's assessment and the RMS reasons for supporting or not the view of the Applicant.

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B.2. PHYSICAL AND CHEMICAL PROPERTIES OF THE ACTIVE SUBSTANCE

In the table below the physical and chemical properties of the active substance glyphosate (parent) and the variants isopropyl-amine salt (IPA), ammonium salt and potassium salt are given.

The variant glyphosate dimethylammonium salt (DMA) is formed during the formulation process and therefore the physical and chemical data are not required. However, attempts to isolate the DMA salt showed that a hard glass is formed, when the solvent is removed. The isolation of pure glyphosate DMA salt was not possible since the product was unsuitable to purification step by recrystallisation. Nevertheless, several studies were performed with a solution of 62.1 % glyphosate DMA salt, which are still relied upon for the sake of completeness.

The studies which had been evaluated and relied upon during AIR2 process are presented in the below table in a grey font. The new studies for first submission of AIR5 process are summarised in a black font.
Note: Initially, the applicant has presented these studies KCA 2.1/006, KCA 2.4/014, KCA 2.5/007, KCA 2.7/007, KCA 2.8/006, and KCA 2.2/007 in the grey font. But as they are not present in the first submission, these studies are summarised in a black front.

Glyphosate acid and its related salt variations are white (crystalline) powders without odour, with the exception of glyphosate DMA salt which cannot be isolated. Glyphosate DMA salt (~62 % solution) is a yellow liquid with a waxy odour. Melting point of glyphosate acid is 189.5 °C and the other related salt variations range from 110 to 164 °C for IPA salt, 219.8 °C for K salt and the NH4 salt decomposed at 190 °C before melting. Glyphosate and its variants all decompose exothermically before boiling. Glyphosate and its salt variations are not volatile substances. Glyphosate acid has moderate solubility and its salt variations have high water solubility, which shows moderate to high pH dependence. All partition coefficients in octanol/water of glyphosate acid and its salt variations are at a negative level. Glyphosate acid and its related salt variations are not highly flammable, not auto-flammable, not explosive and have no oxidising properties.

Test or Study Annex Point	Guideline and method	Test material purity and specification	Used methods / Results	Comments (Acceptable / Non acceptable)	GLP	Reference
B.2.1. MELTING POINT AND BOILING POINT						
Melting, freezing or solidification point **B.2.1/01**	OECD 102 (melt microscope)	Glyphosate acid: Batch no.: M 52-77-1 Purity: 99.9% w/w	Melting point: 189 5 C	Acceptable	Y	[redacted] (1989) Report no. NA 89 9641/1 **KCA 2.1/001**
	EEC-A.1 (DSC method)	Glyphosate IPA salt: Batch no.: RUD-9411-6244-T Purity: 98.1% w/w	Melting range: 143 – 164 C	Acceptable Both results are plausible because of different heating rates	Y	[redacted] (1995) Report no. 134112 **KCA 2.1/002**
	OECD 102 (capillary method)	Glyphosate IPA salt: Batch no.: 10819 Purity: 98.0% w/w	Melting range: 110 – 113 C		Y	[redacted] (1993) Report no. PR93/015 **KCA 2.1/003**
	OECD 102 (capillary method)	Glyphosate NH_4 salt: Batch no.: PSGA 1128 Purity: 97.9% w/w	Decomposed at temperature >190 C without melting	Acceptable	Y	[redacted] (1993) Report no. 93/MONO32/0343 **KCA 2.1/004**
	OECD 102, EEC A.1 (capillary method)	Glyphosate K salt: Batch no.: NBP7698320 Purity: 98.4% w/w	Melting point: 219.8 C	Acceptable	Y	[redacted] (2007) Report no. MSL0021012 **KCA 2.1/005**
	Statement	**Glyphosate DMA salt**	**Pure glyphosate DMA salt can technically not be isolated. Therefore this dossier point cannot be fulfilled and should therefore not be required**	**Acceptable**	**N**	[redacted] **Report no. NAFST-12-50 KCA 2.1/006**
Boiling point **B.2.1/02**	Statement	Glyphosate and Glyphosate IPA salt, K-, NH_4- and DMA salts	The boiling point is not applicable because glyphosate and its salts decompose during melting	Acceptable	-	-
Decomposition / Sublimation temperature **B.2.1/03**	OECD 102 (melt microscope)	Glyphosate acid: Batch no.: M 52-77-1 Purity: 99.9% w/w	Decomposition temperature: 199.1 C	Acceptable	Y	[redacted] (1989) Report no. NA 89 9641/I **KCA 2.1/001**
	OECD 102 EEC A.1	Glyphosate acid Batch no.: ASW01705-01A	Pure glyphosate decomposes at about 200 C	Acceptable	Y	[redacted]

Test or Study Annex Point	Guideline and method	Test material purity and specification	Used methods / Results	Comments (Acceptable / Non acceptable)	GLP	Reference
	(capillary method)	Purity: 99.6 % w/w				(1997) Report no. RJ2400B **KCA 2.1/007**
	OECD 102 EEC A.1 (capillary method)	Glyphosate acid Batch no.: Bx6 Purity: 96.9 % w/w	Glyphosate technical material decomposes at about 200 C	Acceptable	Y	[redacted] (1997) Report no. RJ2401B **KCA 2.1/008**
	EEC A.1 (DSC method)	Glyphosate IPA salt: Batch no.: RUD-9411-6244-T Purity: 98.1 % w/w	Decomposition temperature: > 282 C (the test substance reacts or decomposes in an air atmosphere)	Acceptable	Y	[redacted] (1995) Report no. 134112 **KCA 2.1/002**
	OECD 102 (capillary Method) EEC-92/69, Part A 2.1	Glyphosate NH_4 salt: Batch no.: PSGA 1128 Purity: 97.9 % w/w	Decomposition temperature: > 190 C	Acceptable	Y	[redacted] (1993) Report no. 93/MONO32/0343 **KCA 2.1/004**
	EEC A.1 OECD 102 (capillary method)	Glyphosate K salt: Batch no.: NBP7698320 Purity: 98.4 % w/w	Decomposition temperature: 223.9 C	Acceptable	Y	[redacted] (2007) Report no. MSL0021012 **KCA 2.1/005**
	OPPTS 830.6316 (DSC method)	Glyphosate DMA salt: Batch no.: TSN105029 Purity: 62.1 % w/w	Exothermic decomposition begins at approximately 280 C	Acceptable	Y	[redacted] (2005) Report no. FAPC053278 **KCA 2.1/009**
B.2.2. VAPOUR PRESSURE, VOLATILITY						
Vapour pressure B.2.2/01	OECD 104 (vapour pressure balance method)	Glyphosate acid: Batch no.: 206-JaK-25-1 Purity: 98.6 % w/w	Vapour pressure: 1.31×10^{-5} Pa (25 C)	Acceptable	Y	[redacted] (1991) Report no. 6611-676/2-A **KCA 2.2/001**
	OECD 104 EEC A 4 (effusion method)	Glyphosate IPA salt: Batch no.: 3.8.88 Purity: 98.2 % w/w	Vapour pressure: 2.1×10^{-6} Pa (25 C)	Acceptable	N	[redacted] (1990) Report no. MSL9762 **KCA 2.2/002**

Test or Study Annex Point	Guideline and method	Test material purity and specification	Used methods / Results	Comments (Acceptable / Non acceptable)	GLP	Reference
	OECD 104 (gas saturation method)	Glyphosate IPA salt: Batch no.: 91214 Purity: 98.0 % w/w	Vapour pressure: 1 3 × 10^{-6} Pa (25 C) 0.7 × 10^{-6} Pa (20 C)	Acceptable	Y	[redacted] (1993) Report no. PR93/018 **KCA 2.2/003**
	OECD 104 (vapour pressure balance method) EEC A.4	Glyphosate NH_4 salt: Batch no.: PSGA 1128 Purity: 97.9 % w/w	Vapour pressure: 9.0 × 10^{-6} Pa (25 C)	Acceptable	Y	[redacted] (1993) Report no. 93/MONO32/0343 **KCA 2.2/004**
	OECD 104 EEC A 4 (effusion method) OPPTS 830.7950	Glyphosate K salt: Batch no.: GLP-1112-21703-T Purity: 91.8 % w/w	Vapour pressure: < 5.8 × 10^{-3} Pa (25 C) < 1.5 × 10^{-3} Pa (20 C)	Acceptable	Y	[redacted] (2012) Report no. 497741 **KCA 2.2/005**
	Statement	Glyphosate DMA salt	Pure glyphosate DMA salt can technically not be isolated. Therefore, this dossier point cannot be fulfilled and should therefore not be required.	Acceptable	N	[redacted] Report no. NAFST-12-50 **KCA 2.2/006**
Volatility (Henry's Law constant) B.2.2/02	**Calculation**	**Glyphosate acid**	**Henry's law constant is re-calculated based on vapour pressure 1.31 × 10^{-5} Pa (25 C) and water solubility > 100 g/L (20 C)** **Henry's law constant: < 2.21 × 10-8 Pa·m^3·mol^{-1}**	**Acceptable**	**N**	-
	Calculation	Glyphosate acid	Henry's law constant: 2.1 × 10^{-7} Pa·m^3·mol^{-1} (25 C)	Acceptable	N	-
	Calculation	Glyphosate IPA salt	Henry's law constant: 4.6 × 10^{-10} Pa·m^3·mol^{-1} (25 C)	Acceptable	N	-
	Calculation	**Glyphosate NH_4 salt**	**Henry's law constant is re-calculated based on vapour 9.0 × 10^{-6} Pa (25 C) and water solubility 195 g/L (20 C under pH 7)** **Henry's law constant: < 8.6 × 10^{-9} Pa·m^3·mol^{-1}**	**Acceptable**	**N**	-
	Calculation	Glyphosate NH_4 salt	Henry's law constant: 1.16 × 10^{-8} Pa·m^3·mol^{-1} (25 C)	Acceptable	N	-
	Calculation	Glyphosate K salt	Henry's law constant: = 1.31 × 10^{-6} Pa·m^3·mol^{-1} (25 C) (calculated from vapour pressure < 5.8 x 10^{-3} Pa and water solubility 918.7 g/L) Henry's law constant: < 3.38 × 10^{-7} Pa·m^3·mol^{-1} (20 C) (calculated from vapour pressure < 1.5 x 10^{-3} Pa and water solubility 918.7 g/L)	Acceptable	N	-
	Calculation	**Glyphosate acid**	**Henry's law constant: 2.0 × 10^{-7} Pa·m^3·mol^{-1} (20 C)**	**Acceptable**	**Y**	[redacted] (1997) Report no. RJ2400B KCA 2.2/007

Test or Study Annex Point	Guideline and method	Test material purity and specification	Used methods / Results	Comments (Acceptable / Non acceptable)	GLP	Reference
B.2.3. APPEARANCE (PHYSICAL STATE, COLOUR)						
Physical state and colour **B.2.3/01**	Visual	Glyphosate acid: Batch no.: ASW01705-01A Purity: 99.6 % w/w	White solid without characteristic odour	Acceptable	Y	[redacted] (1997) Report no. RJ2400B **KCA 2.3/001**
	Visual	Glyphosate acid: Batch no.:Bx6 Purity: 96.9 % w/w	White solid without characteristic odour	Acceptable	Y	[redacted] (1997) Report no. RJ2401B **KCA 2.3/002**
	Visual	Glyphosate IPA salt: Batch no.: RUD-9410-6240-T Purity: 96.7 % w/w	White powder without characteristic odour	Acceptable	Y	[redacted] (1995) Report no. 134145 **KCA 2.3/003**
	Visual	Glyphosate NH_4 salt: Batch no.: PSGA 1128 Purity: 97.9 % w/w	White crystalline powder without characteristic odour	Acceptable	Y	[redacted] (1993) Report no. 93/MONO32/0343 **KCA 2.3/004**
	Visual	Glyphosate K salt: Batch no.: NBP7698320 Purity: 98.4 % w/w	White crystalline solid without characteristic odour (salt free from visible extraneous matter, contains grains of salt of various sizes)	Acceptable	Y	[redacted] (2007) Report no. MSL0021012 **KCA 2.3/005**
	Visual	Glyphosate DMA salt Batch no.: TSN105029 Purity: 62.1 % w/w	Yellow liquid with waxy odour	Acceptable	Y	[redacted] (2005) Report no. FAPC053278 **KCA 2.3/006**

B.2.4. SPECTRA (UV/VIS, IR, NMR, MS), MOLAR EXTINCTION COEFFICIENT AT RELEVANT WAVELENGTHS, OPTICAL PURITY

Ultraviolet/visible (UV/VIS) **B.2.4/01** **Infrared (IR)** **B.2.4/02** **Nuclear magnetic resonance (NMR)** **B.2.4/03** **Mass spectra (MS)** **B.2.4/04**	OCSPP Series 830.7050	**Glyphosate acid** **Batch no.: 11493988** **Purity: 97.7 % w/w**	**pH conditions / UV/VIS maximum [nm] / Molar extinction coefficient [L mol^{-1} cm^{-1}]** Neutral (pH 7 19) 200 122 Acidic (pH 1.99) 200 760 Basic (pH 10.29) 200 712 **The highest absorbance for all samples was observed at 200nm.** **The pH of the solutions was adjusted with HCl and NaOH.**	Acceptable	Y	[redacted] (2020) Report no.: TRR0000009 KCA 2.4/001
	UV/VIS, IR, NMR, MS	Glyphosate acid: Batch no.: ASW01705-01A Purity: 99.6 % w/w	Typical spectra (UV/VIS, IR, NMR and MS) were recorded and in accordance with the structure of glyphosate acid. $\varepsilon < 10$ L mol^{-1} cm^{-1} ($\upsilon > 290$ nm)	Acceptable	Y	[redacted] (1997) Report no. RJ2400B KCA 2.4/002
	UV/VIS	Glyphosate acid: Batch no.: 185-ff-131 Purity: 99.5 % w/w	No maximum in the range 200 – 340 nm	Acceptable	Y	[redacted] (1992) Report no. REF 058-01 KCA 2.4/003
	UV/VIS	Glyphosate acid: Batch no.: not defined	No maximum in the range 200 – 340 nm	Acceptable	Y	[redacted] (1990) CHE9600682 KCA 2.4/004
	OCSPP Series 830.7050	**Glyphosate IPA salt: Batch no.: 11511060 Purity: 92.2 % w/w as the IPA salt**	**pH conditions / UV/VIS maximum [nm] / Molar extinction coefficient [L mol^{-1} cm^{-1}]** Neutral (pH 7 19) 200 279 Acidic (pH 1.99) 200 233 Basic (pH 10.29) 200 534 **The highest absorbance for all samples was observed at 200nm.** **The pH of the solutions was adjusted with HCl and NaOH.**	**Acceptable**	**Y**	[redacted] (2020) **Report no.: TRR0000009 KCA 2.4/001**
	UV/VIS, IR, NMR, MS	Glyphosate IPA salt: Batch no.: 91214 Purity: 98.0 % w/w	UV/VIS: no characteristic absorption maxima. IR, NMR, MS: the spectra are in accordance with the structure of glyphosate IPA salt.	Acceptable	Y	[redacted] (1995) Report no. 134178 134156 KCA 2.4/005 KCA 2.4/006 [redacted] (1995) Report no. 134167 KCA 2.4/007

B.2.4. SPECTRA (UV/VIS, IR, NMR, MS), MOLAR EXTINCTION COEFFICIENT AT RELEVANT WAVELENGTHS, OPTICAL PURITY

						[redacted] (1995) Report no.: V95 110 **KCA 2.4/008** [redacted] (1993) Report no. PR90/005 **KCA 2.4/009**
	MS	Glyphosate NH_4 salt: Batch no.: GLP-1110-21662-T Purity: 97.51 % w/w	MS spectra is in accordance with the structure of glyphosate NH_4 salt	Acceptable	Y	[redacted] (2012) Report no. 497739 **KCA 2.4/010**
	UV/VIS	Glyphosate NH_4 salt: Batch no.: PSGA 1128 Purity: 97.9 % w/w	No maximum absorption in the range 220 - 800 nm. Spectra are consistent with the assigned structure of glyphosate NH_4 salt	Acceptable	Y	[redacted] (1993) Report no. 93/MONO32/0343 **KCA 2.4/011**
	UV/VIS, IR	Glyphosate K salt: Batch no.: GLP-1112-21703-T Purity: 91.8 % w/w	No maximum in the range 200 - 900 nm at pH 1, pH 5 and pH 13. UV/VIS, IR and mass spectra are consistent with the assigned structure of the material.	Acceptable	Y	[redacted] (2012) Report no. 497741 **KCA 2.4/012**
	NMR	Glyphosate K salt: Batch no.: GLP-1112-21703-T Purity: 91.8 % w/w	^{1}H-NMR spectrum is consistent with the assigned structure of the material.	Acceptable	Y	[redacted] (2012) Report no. MSL0024019 **KCA 2.4/013**
	Statement	**Glyphosate DMA salt**	**Pure glyphosate DMA salt can technically not be isolated. Therefore, this dossier point cannot be fulfilled and should therefore not be required. ^{1}H-NMR and ^{33}P-NMR spectrum available are in accordance with the structure of glyphosate DMA salt.**	**Acceptable**	**N**	[redacted] **Report no. NAFST-12-50 KCA 2.4/014**
Spectra for impurities B.2.4/05	UV/VIS	*N*-nitroso-glyphosate (NNG) Batch no.: ARS lot GLP-0701-17982-A Purity: 0.01 % w/w solution of NNG)	UV/VIS spectrum available (200 to 800 nm). IR spectra is in accordance with the structure of *N*-nitroso-glyphosate (NNG).	Acceptable	Y	[redacted] (2013) Report no.: 3034 **KCA 2.4/015** [redacted] (2011) Report no. PCH-2011-0666 **KCA 2.4/016**
	NMR, MS	*N*-nitroso-glyphosate (NNG) Batch no.: ARS lot GLP-0701-17982-A Purity: 0.01% w/w solution of NNG)	NMR, MS spectrum are in accordance with the structure of *N*-nitroso-glyphosate (NNG).	Acceptable	Y	[redacted] (1995) Report no. AA016556 **KCA 2.4/017**

B.2.4. SPECTRA (UV/VIS, IR, NMR, MS), MOLAR EXTINCTION COEFFICIENT AT RELEVANT WAVELENGTHS, OPTICAL PURITY

	IR	Formaldehyde Batch no.:GLP-1107-21542-A Purity: 37 % w/w solution of formaldehyde	IR spectrum is in accordance with the structure of formaldehyde.	Acceptable	Y	[redacted] (2011) Report no. PCH-2011-0667 **KCA 2.4/018**
	UV/VIS, NMR, MS	Formaldehyde Batch no.:847225 Purity: 19.6 % w/w solution of formaldehyde in 7/1 water/methanol solution	UV/VIS, NMR and MS spectrum are in accordance with the structure of formaldehyde.	Acceptable	Y	[redacted] (1992) Report no. REF 062-01 **KCA 2.4/019**

B.2.5. SOLUBILITY IN WATER

Solubility in water **B.2.5/01**	**OECD 105 OPPTS 830.7840 (Shake flask method) -method LC-MS/MS is fit for purpose**	**Glyphosate acid (pure): Batch no.: 107671 Purity: 99.9 % w/w**	**The solubility of glyphosate acid at pH 5 and pH 7 at 20 C was determined to be greater than 100 g/L. The solubility of glyphosate at pH 9 at 20 C was 171 g/L.**	**Acceptable**	**Y**	[redacted] (2020a) **Report no. 139K-101 KCA 2.5/001**
	OECD 105 EEC A.6 (Shake flask method) - Analytical method validation is missing.	Glyphosate acid: Batch no.: 185-55-131 Purity: 99.5 % w/w	10.5 g/L at 20 C (pH 1.90 – 1.98) The solubility of glyphosate acid is best measured in distilled water. The resulting solution has low pH. Buffering the water phase to specific pH ranges involves the introduction of ionic species, which may increase the solubility of the glyphosate acid resulting in unrealistically higher values.	Acceptable Study is considered informative only	Y	[redacted] (1990) Report no. 257207 **KCA 2.5/002**
	OECD 105 (Shake flask method) - Analytical method validation is missing.	Glyphosate IPA salt: Batch no.: RUD-9411-6244-T Purity: 98.1 %	1050 g/L at 20 C (pH 4.3, pure water) 627 g/L (pH 3.9, acidic medium) 990 g/L (pH 6.2, alkaline medium) When the pH was raised to 6.5 by addition of sodium hydroxide a precipitate was formed. Thus, no determination at pH-values greater than 6 5 is possible.	Acceptable Study is considered informative only	Y	[redacted] (1995) Report no. 134191 **KCA 2.5/003**
	OECD 105 OPPTS 830.7840 (Shake flask method) -	**Glyphosate NH_4 salt: Batch no.: 11510222 Purity: 86.7 % w/w**	**212 g/L at 20 C (pH 5) 195 g/L at 20 C (pH 7) 190 g/L at 20 C (pH 9)**	**Acceptable**	**Y**	[redacted] (2020b) **Report no. 139K-107 KCA 2.5/004**

B.2.4. SPECTRA (UV/VIS, IR, NMR, MS), MOLAR EXTINCTION COEFFICIENT AT RELEVANT WAVELENGTHS, OPTICAL PURITY						
	method LC-MS/MS is fit for purpose					
	OECD 105 EEC A.6 (Shake flask method) - Analytical method validation is missing.	Glyphosate NH_4 salt: Batch no.: PSGA 1128 Purity: 97.9 % w/w	144 g/L at 20 C (pH 3.2)	Acceptable Study is considered informative only	Y	[redacted] (1993) Report no. 93/MONO32/0343 **KCA 2.5/005**
	OECD 105 EEC A.6 (Shake flask method) - Analytical method validation is missing.	Glyphosate K salt: Batch no.: NBP7698320 Purity: 98.4 % w/w	918 3 g/L at 20 C (distilled water) 923 3 g/L at 20 C (pH 4) 918.7 g/L at 20 C (pH 7) 902 5 g/L at 20 C (pH 9)	Acceptable Study is considered informative only	Y	[redacted] (2007) Report no. MSL0021012 **KCA 2.5/006**
	Statement	**Glyphosate DMA salt**	**Pure glyphosate DMA salt can technically not be isolated. Therefore this dossier point cannot be fulfilled and should therefore not be required.**	**Acceptable**	**N**	[redacted] **Report no. NAFST-12-50** **KCA 2.5/007**
	OECD Guideline 105 OPPTS 830.7840 EEC A.6 (Shake flask method) - method LC-MS/MS is fit for purpose	**HMPA (hydroxymethylphosphonic acid) Batch no.: GLP-1401-23083-A Purity: 99 % w/w**	**≥ 782 g/L at 20 C (pH 4) ≥ 769 g/L at 20 C (pH 7) ≥ 762 g/L at 20 C (pH 9)**	**Acceptable**	**Y**	[redacted](2020a) **Report no. 89593** **KCA 2.5/008**
B.2.6. SOLUBILITY IN ORGANIC SOLVENTS						
	OECD 105 (shake flask method) - Analytical method validation is missing.	Glyphosate acid: Batch no.: TGAI: Bx6 Purity: 96.9 % w/w	At 20 °C: Heptane: < 0.6 mg/L Octan-1-ol: < 0.6 mg/L Methanol: 10 mg/L Xylenes: < 0.6 mg/L Ethyl acetate: < 0.6 mg/L Acetonitrile: 0.8 mg/L Acetone: < 0.6 mg/L 1,2-dichloroethane: < 0.6 mg/L	Acceptable Study is considered informative only	Y	[redacted] (1997) Report no. RJ2401B **KCA 2.6/001**

B.2.4. SPECTRA (UV/VIS, IR, NMR, MS), MOLAR EXTINCTION COEFFICIENT AT RELEVANT WAVELENGTHS, OPTICAL PURITY

	OECD 105 (shake flask method) - Analytical method validation is missing.	Glyphosate acid: Batch no.: 206-JaK-25-1 Purity: 98.6 % w/w	**At 20 °C**: Acetone: 0.078 g/L Dichloromethane: 0.233 g/L Ethyl acetate: 0.012 g/L Hexane: 0.026 g/L Methanol: 0.231 g/L Propane-2-ol: 0.02 g/L Toluene: 0.036 g/L	Acceptable Study is considered informative only	Y	[redacted] (1991) Report no. 6759-676/5 KCA 2.6/002
	EEC A.6 (shake flask method) - Analytical method validation is missing.	Glyphosate IPA salt: Batch no.: 10819 Purity: 98.0 % w/w	**At 23 °C** (room temperature): Methanol: 19.86 g/L Hexane: < 0.05 g/L Toluene: < 0.05 g/L Dichloromethane: < 0.05 g/L Acetone: < 0.05 g/L Ethyl acetate: < 0.05 g/L	Acceptable Study is considered informative only	Y	[redacted] (1993) Report no. PR93/014 KCA 2.6/003
	Shake flask method - Analytical method validation is missing.	Glyphosate IPA salt: Batch no.: 65-JCh-130-3 Purity: 98.3 % w/w	**At 20 °C** : Dichloromethane: 0.184 g/L Methanol: 15.88 g/L	Acceptable Study is considered informative only	Y	[redacted] (1992) Report no. 7067-676/7-1 KCA 2.6/004
	OECD 105 EEC A.6 – (flask method) Analytical method validation is missing.	Glyphosate NH_4 salt: Batch no.: RM3606 Purity: >98 % w/w	**At 20 °C** : Acetone: 2.3 mg/L Ethylene dichloride: <1.3 mg/L Methanol: 159 mg/L Heptane: <1.3 mg/L Ethyl acetate: < 1.3 mg/L Xylene: < 1.3 mg/L	Acceptable Study is considered informative only	Y	[redacted] (1999) Report no. 12324 KCA 2.6/005
	EEC A.6 – (flask method) Analytical method validation is missing.	Glyphosate K salt: Batch no.: NBP7698320 Purity: 98.4 % w/w	**At 20 °C** : Acetone: < 10.2 mg/L Dichloromethane: < 10.2 mg/L Methanol: 217 mg/L Heptane: < 10.2 mg/L Ethyl acetate: < 10.2 mg/L Toluene: < 10.2 mg/L	Acceptable Study is considered informative only	Y	[redacted] (2007) Report no. MSL0021012 KCA 2.6/006
	Statement	Glyphosate DMA salt	Pure glyphosate DMA salt can technically not be isolated. Therefore this dossier point cannot be fulfilled and should therefore not be required	Acceptable	N	[redacted] Report no. NAFST-12-50 KCA 2.6/007

B.2.7. PARTITION COEFFICIENT N-OCTANOL/WATER

Partition coefficient n-octanol/water B.2.7/01	**OPPTS 830.7550 OECD 107 (shake flask method) method is fit for purpose**	**Glyphosate acid: Batch no.: 107671 Purity: 99.9 % w/w**	**Log P_{ow} = -5.39 at 25 C (at pH buffers at 5) Log P_{ow} = -6.28 at 25 C (at pH buffers at 7) Log P_{ow} = -5.83 at 25 C (at pH buffers at 9)**	**Acceptable**	**Y**	[redacted] (2020a) **Report no. 139K-102 KCA 2.7/001**
	OECD 107 (scintillation counter) Analytical method validation is not required for analytical method for analysis of radio labelled compound	Glyphosate acid: Batch no.: 185-55-131 Purity: 99.5 % w/w	Log P_{ow}= -3.4 at 20 C	Acceptable	Y	[redacted] (1990) Report no. 238498 **KCA 2.7/002**
	US EPA Guideline CG-1400 - Analytical method validation is missing.	Glyphosate acid: Batch no.: not documented Purity: 99.9 % w/w	Log P_{ow} = < -3.2 at 25 C (at pH buffers from 5 to 9)	Acceptable Study is considered informative only	N	[redacted] (1987) Report no. Amended MSL-7241 **KCA 2.7/003**
	OECD 107 OECD 117 EEC A.8 - Analytical method validation is missing.	Glyphosate IPA salt Batch no.: RUD-9411-6244-T Purity: 98.1 % w/w	Log P_{ow} = -4.16 at 20 C (at pH buffers 4.3 – 6.2)	Acceptable Study is considered informative only	Y	[redacted] (1995) Report no. 134224 **KCA 2.7/004**
	OECD 107 - Analytical method validation is missing.	Glyphosate NH_4 salt: Batch no.: PSGA 1128 Purity: 97.9 % w/w	Log P_{ow} = < -3.7 at 20 C (at pH 3.16) For salts like the glyphosate NH_4-salt the pH dependency is not relevant due to the nature of salts (partition coefficient not sensitive to pH (as confirmed for the IPA salt) and water solubility not sensitive to pH (as confirmed for the K-salt)	Acceptable Study is considered informative only	Y	[redacted] (1993) Report no. 93/MONO32/0343 **KCA 2.7/005**
	OECD 107 EEC A.8 OPPTS 830.7550 (shake flask method) -	Glyphosate K salt: Batch no.: GLP-1112-21703-T Purity: 91.8 % w/w	Log P_{ow} = < -0.7 at 20 C, (at pH 3.16) (shake flask method) Log P_{ow} = < -4.0 at 20 C (estimation method) For salts like the glyphosate NH_4-salt the pH dependency is not relevant due to the nature of salts (partition coefficient not sensitive to pH (as confirmed	Acceptable	Y	[redacted] (2012) Report no. 497741 **KCA 2.7/006**

	method LC-MS/MS is fit for purpose		for the IPA salt) and water solubility not sensitive to pH (as confirmed for the K-salt)			
	Statement	Glyphosate DMA salt	Pure glyphosate DMA salt can technically not be isolated. Therefore, this dossier point cannot be fulfilled and should therefore not be required.	Acceptable	N	[redacted] Report no. NAFST-12-50 KCA 2.7/007
	OPPTS 830.7550 OECD 107 (shake flask method) - method LC-MS/MS is fit for purpose	*N*-acetyl glyphosate: Batch no.: 11085 (and 3-SKC-44-1) Purity: 93 % w/w	Log P_{ow} = -6.29 at 25 C (at pH buffers at 5) Log P_{ow} = -6.26 at 25 C (at pH buffers at 7) Log P_{ow} = -6.86 at 25 C (at pH buffers at 9)	Acceptable	Y	[redacted] (2020b) Report no. 139K-104 KCA 2.7/008
	OPPTS 830.7550 OECD 107 (shake flask method) - method LC-MS/MS is fit for purpose	AMPA (aminomethyl phosphonic acid): Batch no.: 107785 Purity: 99.2 % w/w	Log P_{ow} = -3.78 at 25 C (at pH buffers at 5) Log P_{ow} = -4.71 at 25 C (at pH buffers at 7) Log P_{ow} = -5.23 at 25 C (at pH buffers at 9)	Acceptable	Y	[redacted] (2020c) Report no. 139K-103 KCA 2.7/009
	OPPTS 830.7550 OECD 107 EEC A.8 (shake flask method) - method LC-MS/MS is fit for purpose	HMPA (hydroxymethylphosphonic acid) Batch no.: GLP-1401-23083-A Purity: 99 % w/w	Log P_{ow} ≤ -3.2 at 22 C (at pH buffers at 4) Log P_{ow} ≤ -3.2 at 22 C (at pH buffers at 7) Log P_{ow} ≤ -3.3 at 22 C (at pH buffers at 9)	Acceptable	Y	[redacted] (2020b) Report no. 89592 KCA 2.7/010
B.2.8. DISSOCIATION IN WATER						
Dissociation constant **B.2.8/01**	OECD 112 (titration)	Glyphosate acid (pure): Batch no.: 22022 Purity: 99 % w/w	At 20 C: $pK_a1 = 2.34 \pm 0.11$ ($C_3H_8NO_5P/C_3H_7NO_5P^-$) $pK_a2 = 5.73 \pm 0.10$ ($C_3H_7NO_5P^-/C_3H_6NO_5P^{2-}$)	Acceptable	Y	[redacted] (1995) Report no. 141828 KCA 2.8/001
	FIFRA 63-10 (OECD 112) (potentiometric titration)	Glyphosate acid (pure): Batch no.: 206-JaK-25-1 Purity: 98.6 % w/w	At 25 C: $pK_a1 = 2.74$ ($C_3H_8NO_5P/C_3H_7NO_5P^-$) $pK_a2 = 5.63$ ($C_3H_7NO_5P^-/C_3H_6NO_5P^{2-}$) $pK_a3 = 10.2$ ($C_3H_6NO_5P^{2-}/C_3H_5NO_5P^{3-}$)	Acceptable	Y	[redacted] (1995) Report no. 95-044-1020 KCA 2.8/002
	OECD 112 (titration)	Glyphosate IPA salt: Batch no.: RUD-9411-6244-T Purity: 98.1 % w/w	At 20 C: $pK_a1 = 2.18 \pm 0.02$ $pK_a2 = 5.77 \pm 0.03$	Acceptable	Y	[redacted] (1995) Report no. 134213 KCA 2.8/003

	OECD 112 (titration) OPPTS 830.7370	Glyphosate K salt: Batch no.: GLP-1112-21703-T Purity: 91.8 % w/w	At 20 C: $pK_a = 5.73 \pm 0.080$	Acceptable	Y	[redacted] (2012) Report no. 497741 KCA 2.8/004
	OECD 112 OPPTS 830.7370 (titration)	Glyphosate NH_4 salt: Batch no.:GLP-1110-21662-T Purity: 97.51 % w/w	At 20 C: $pK_a = 5.52 \pm 0.022$	Acceptable	Y	[redacted] (2012) Report no. 497739 KCA 2.8/005
	Statement	Glyphosate DMA salt	Pure glyphosate DMA salt can technically not be isolated. Therefore this dossier point cannot be fulfilled and should therefore not be required.	Acceptable	N	[redacted] Report no. NAFST-12-50 KCA 2.8/006
B.2.9. FLAMMABILITY AND SHELF-HEATING						
Flammability B.2.9/01	UN test N.1	Glyphosate acid technical Batch no.: 11493988 Purity: 97.7 % w/w	The test item glyphosate, technical substance is not a readily combustible solid	Acceptable	Y	[redacted] (2019) Report no. PS20190309-1 KCA 2.9/001
	EEC A.10	Glyphosate acid (pure): Batch no.: 198-SI-22-1 Purity: 98.7 % w/w	Glyphosate acid is not flammable	Acceptable The result can be extrapolated to the CLP regulation	Y	[redacted] (1989) Report no. 015244 KCA 2.9/004
	EEC A.10	Glyphosate IPA salt: Batch no.: RUD-9410-6240-T Purity: 96.7 % w/w	Glyphosate IPA salt is not flammable.	Acceptable The result can be extrapolated to the CLP regulation	Y	[redacted] (1995) Report no. 134235 KCA 2.9/005
	EEC A.10	Glyphosate NH_4 salt: Batch no.: PSGA 1128 Purity: 97.9 % w/w	Glyphosate NH_4 salt is not flammable.	Acceptable The result can be extrapolated to the CLP regulation	Y	[redacted] (1993) Report no. 93/MONO32/0343 KCA 2.9/007
	EEC A.10	Glyphosate K salt: Batch no.: GLP-1112-21703-T Purity: 91.8 % w/w	Glyphosate K salt is not highly flammable.	Acceptable The result can be extrapolated to the CLP regulation	Y	[redacted] (2012) Report no. 497741 KCA 2.9/009
Self heating B.2.9/02	UN test N.4	Glyphosate acid technical Batch no.: 11493988 Purity: 97.7 % w/w	The test item is not classified as "self-heating substance" according to UN Test N.4 and chapter 2.11 of the GHS (CLP) regulations.	Acceptable	Y	[redacted] (2019) Report no. PS20190309-2 KCA 2.9/002
	EEC A.16	Glyphosate acid: Batch no.: TGAI: Bx6 Purity: 96.9 % w/w	Does not self-ignite below the upper limit of the test (400 C). The relative self-ignition temperature could not be determined.	Acceptable The result can be extrapolated to	Y	[redacted] (1997)

				the CLP regulation		Report no. RJ2401B **KCA 2.9/003**
	EEC A.16	Glyphosate IPA salt: Batch no.: RUD-9410-6240-T Purity: 96.7% w/w	Glyphosate IPA salt is not auto-flammable (auto-ignition temperature > 400 C).	Acceptable The result can be extrapolated to the CLP regulation	Y	[redacted] (1995) Report no. 134257 **KCA 2.9/006**
	EEC A.16	Glyphosate NH_4 salt: Batch no.: PSGA 1128 Purity: 97.9% w/w	Glyphosate NH_4 salt is not auto-flammable (auto-ignition temperature > 400 C).	Acceptable The result can be extrapolated to the CLP regulation	Y	[redacted] (1993) Report no. 93/MONO32/0343 **KCA 2.9/007**
	EEC A.16	Glyphosate K salt: Batch no.: GLP-1112-21703-T purity: 88.3% w/w	Glyphosate K salt has a self-ignition temperature of 348 C.	Acceptable The result can be extrapolated to the CLP regulation	Y	[redacted] (2013) Report no. 503444 **KCA 2.9/008**
	EEC A.15	Glyphosate DMA salt: Batch no.: 259709 Purity: 60.8% w/w	Glyphosate DMA salt was found not to have an auto-ignition temperature below 400 C	Acceptable The result can be extrapolated to the CLP regulation	Y	[redacted] (2012) Report no. ABY0190 (NAFST-11-251) **KCA 2.9/10**
B.2.10. FLASH POINT						
Flash point B.2.10/01	Statement	Not applicable	Flash point is not required, as glyphosate acid and glyphosate IPA salt, K and NH_4-salt are solid.	Acceptable	-	-
	OPPTS 830.6315 ASTM D3278-82	Glyphosate DMA salt Batch no.: TSN105029 Purity: 62.1 % w/w	Not highly flammable; flash point > 100 C	Acceptable The result can be extrapolated to the CLP regulation	Y	[redacted] (2005) Report no. FAPC053278 **KCA 2.10/01**
B.2.11. EXPLOSIVE PROPERTIES						
Explosive properties B.2.11/01	OECD 113	Glyphosate acid: Batch no.: SAB-IDA 005 Purity: 100 % w/w	No endothermic or exothermic decomposition is observed in nitrogen or air below 150 C.	Not Acceptable Not in compliance with EEC A14	Y	[redacted] (2002) Report no. HT02/075 **KCA 2.11/001**
	Statement based on chemical structure	Glyphosate acid	Glyphosate acid is not explosive, the substance does not contain any chemically instable or highly energetic groups that might lead to an explosion.	Acceptable The result can be extrapolated to	N	[redacted] (1984)

				the CLP regulation		Report no. 122377 **KCA 2.11/002**
	EEC A.14	Glyphosate IPA salt: Batch no.: RUD-9410-6240-T Purity: 96.7 % w/w	Glyphosate IPA salt is not explosive. Non explosive in all trials for shock, friction and thermal sensitivity	Acceptable The result can be extrapolated to the CLP regulation	Y	[redacted] (1995) Report no. 134246 **KCA 2.11/003**
	EEC A.14	Glyphosate NH_4 salt: Batch no.: PSGA 1128 Purity: 97.9 % w/w	Glyphosate NH_4 salt is not explosive. Non explosive in all trials for shock, friction and thermal sensitivity	Acceptable The result can be extrapolated to the CLP regulation	Y	[redacted] (1993) Report no. 93/MONO32/0343 **KCA 2.11/004**
	EEC A.14 (DSC)	Glyphosate K salt: Batch no.: GLP-1112-21703-T Purity: 91.8 % w/w	Glyphosate K salt is not explosive. No exothermic decomposition energy of more than 500 J/g with an onset of below 500 C was obtained.	Acceptable The result can be extrapolated to the CLP regulation	Y	[redacted] (2012) Report no. 497741 **KCA 2.11/005**
	EEC A.14	Glyphosate DMA salt: Batch no.: 259709 Purity: 60.8 % w/w	Glyphosate DMA salt is not explosive.	Acceptable The result can be extrapolated to the CLP regulation	Y	[redacted] (2012) Report no. [redacted]ABY0190 (NAFST-11-251) **KCA 2.11/006**
	OPPTS 830.6316	Glyphosate DMA salt: Batch no.: TSN105029 Purity: 62.1 % w/w	Glyphosate DMA salt is not explosive. Thermal explosivity results showed exothermic decomposition beginning at approximately 280 C. Not impact sensitive.	Acceptable The result can be extrapolated to the CLP regulation	Y	[redacted] (2005) Report no. FAPC053278 **KCA 2.11/007**
B.2.12. SURFACE TENSION						
Surface tension **B.2.12/01**	OECD 115 EEC A.5	Glyphosate acid (technical): Batch no.: TGAI: Bx6 Purity: 96.9 % w/w	72.2 mN/m at 20 C (1 g/L aqueous solution) Glyphosate acid is not surface active.	Acceptable	Y	[redacted] (1997) Report no. RJ2401B **KCA 2.12/001**
	OECD 115 EEC A.5	Glyphosate acid (pure): Batch no.: 206-JaK-25-1 Purity 98.6 % w/w	73 mN/m (90% saturation) Glyphosate acid is not surface active.	Acceptable	Y	[redacted] (1991) Report no. 6760-676/5 **KCA 2.12/002**
	OECD 115 EEC A.5	Glyphosate IPA salt: Batch no.: RUD-9410-6240-T Purity: 96.7 % w/w	72.8 mN/m at 20 C Glyphosate IPA salt is not surface active.	Acceptable	Y	[redacted] (1995)

						Report no. 134268 **KCA 2.12/003**
	OECD 115 EEC A.5	Glyphosate NH_4 salt: Batch no.: PSGA 1128 Purity: 97.9 % w/w	1 g/L in distilled water: 71.7 mN/m at 0 502 g/L in distilled water: 71.7 mN/m at Glyphosate NH_4 salt is not surface active.	Acceptable	Y	[redacted] (1993) Report no. 93/MONO32/0343 **KCA 2.12/004**
	OECD 115 EEC A.5	Glyphosate K salt: Batch no.: GLP-1112-21703-T Purity: 91.8 % w/w	72.7 mN/m at 1 g/L in distilled water Glyphosate K salt is not surface active.	Acceptable	Y	[redacted] (2012) Report no. 497741 **KCA 2.12/005**
	OECD 115 EEC A.5	Glyphosate DMA salt: Batch no.: 259709 Purity: 60.8 % w/w	74.5 mN/m at 25 C (undiluted) 73.0 mN/m at 40 C (undiluted) Glyphosate DMA salt is not surface active.	Acceptable	Y	[redacted] (2012) Report no. ABY0190 (NAFST-11-251) **KCA 2.12/006**
B.2.13. OXIDISING PROPERTIES						
Oxidizing properties **B.2.13/01**	EEC A.17	Glyphosate acid (technical): Batch no.: TGAI: Bx6 Purity: 96.9 % w/w	Glyphosate acid is not an oxidising substance.	Acceptable The result can be extrapolated to the CLP regulation	Y	[redacted] (1997) Report no. RJ2401B **KCA 2.13/001**
	EEC A.17	Glyphosate IPA salt: Batch no.: RUD-9410-6240-T Purity: 96.7 % w/w	Glyphosate IPA salt is not an oxidising substance.	Acceptable The result can be extrapolated to the CLP regulation	Y	[redacted] (1995) Report no. 134279 **KCA 2.13/002**
	EEC A.17	Glyphosate NH_4 salt: Batch no.: PSGA 1128 Purity: 97.9 % w/w	Glyphosate NH_4 salt is not an oxidising substance.	Acceptable The result can be extrapolated to the CLP regulation	Y	[redacted] (1993) Report no. CHE9600608 **KCA 2.13/003**
	EEC A.17 Statement	Glyphosate K salt: Batch no.: GLP-1112-21703-T Purity: 91.8 % w/w	Glyphosate K salt is not an oxidising substance.	Acceptable The result can be extrapolated to the CLP regulation	Y	[redacted] (2012) Report no. 497741 **KCA 2.13/004**
	EEC A.21	Glyphosate DMA salt: Batch no.: TSN105652 Purity: 60.8 % w/w	Glyphosate DMA salt is not an oxidising substance.	Acceptable The result can be extrapolated to the CLP regulation	Y	[redacted] (2012) Report no. ABY0212 (NAFST-12-47) **KCA 2.13/005**

B.2.14. OTHER STUDIES

	Relative density OECD 109 EEC A.3 (pyknometer)	Glyphosate acid Batch no.: N/A Purity: 99.5 w/w	$D^{20}_4 = 1.704$	Acceptable	Y	[redacted] (1988) Report no. AA016554 **KCA 2.14/01**
	Relative density OECD 109 EEC A.3 (pyknometer)	Glyphosate acid Batch no.: ASW01705-01A Purity: 99.6 % w/w	$D^{20}_4 = 1.70$	Acceptable	Y	[redacted] (1997) Report no. RJ2400B **KCA 2.14/02**
	Relative density OECD 109 (pyknometer)	Glyphosate IPA Batch no.: 65-JCh-130-3 Purity: 98.3 % w/w	$D^{20}_4 = 1.482$	Acceptable	Y	[redacted] (1992) Report no. 7067-676/7-1 **KCA 2.14/03**
	Relative density OECD 109 (pyknometer)	Glyphosate NH_4 salt: Batch no.: PSGA 1128 Purity: 97.9 % w/w	$D^{20}_4 = 1.433$	Acceptable	Y	[redacted] (1993) Report no. 93/MONO32/0343 **KCA 2.14/04**
	Relative density OECD 109 ((pyknometer)	Glyphosate K salt: Batch no.: NBP7698320 Purity: 98.4 % w/w	$D^{20}_4 = 1.845$	Acceptable	Y	[redacted] (2007) Report no. MSL0021012 **KCA 2.14/05**
	Relative density OECD 109 (pyknometer))	Glyphosate DMA salt: Batch no.: TSN105029 Purity: 62.1 % w/w	$D^{20}_4 = 1.2597$	Acceptable	Y	[redacted] (2005) Report no. FAPC053278 **KCA 2.14/06**

B.2.15. REFERENCES RELIED ON

Data Point	Author(s)	Year	Title Report No. Document No. Source (where different from company) GLP/ Officially recognised testing facilities[2,3] Published or not	Vertebrate study Y/N	Data protection claimed Y/N	Justification if data protection is claimed	Owner	Previously used[1] Y/N If yes, for which data point-
KCA 2.1-001	[redacted]	1989	Determination of the melting point of the test sample Glyphosate acid 99,9% acc. to OECD-Guideline 102 Report No.: NA 89 9641/I Document No.: - NATEC Institut für naturwissenschaftlich-technische Dienste GmbH GLP/GEP: Y Published: N	N	N	-	BCS	Y RAR 2017: - Monograph 1998: EG:AIIA-2.1 Monograph Trimesium: -
KCA 2.1-002	[redacted]	1995	Determination of the melting temperature of MON 77209 Pure Report No.: 134112 Document No.: - NOTOX B.V. GLP/GEP: Y Published: N	N	N	-	BCS	Y RAR 2017: - Monograph 1998: EG:AIIA-2.1 Monograph Trimesium: -
KCA 2.1-003	[redacted]	1993	Glyphosate Isopropylamine Salt Melting point Report No.: PR93/015 Document No.: PR93/015 Dr. G. Krebs Analytik GLP/GEP: Y Published: N	N	N	-	ADM	Y RAR 2017: - Monograph 1998: EG :AIIA-2 .1 Monograph Trimesium: -
KCA 2.1-004	[redacted]	1993	Glyphosate, ammonium salt: Determination of physico-chemical properties Report No.: 93/MON032/0343 Document No.: - Pharmaco-LSR Ltd. GLP/GEP: Y Published: N	N	N	-	BCS	Y RAR 2017: - Monograph 1998: EG:AIIA-2.1; EG:AIIA-2.2; EG:AIIA-2.3; EG:AIIA-2.4; EG:AIIA-2.5;

Data Point	Author(s)	Year	Title Report No. Document No. Source (where different from company) GLP/ Officially recognised testing facilities[2,3] Published or not	Vertebrate study Y/N	Data protection claimed Y/N	Justification if data protection is claimed	Owner	Previously used[1] Y/N If yes, for which data point-
								EG:AIIA-2.6; EG:AIIA-2.8; EG:AIIA-2.11; EG: AIIA-2.13; EG:AIIA-2.14 Monograph Trimesium: -
KCA 2.1-005	[redacted]	2007	Physico-chemical properties of glyphosate potassium salt Report No.: MSL0021012; Study plan 21442 Document No.: MSL0021012 Walloon Agricultural Research Centre (CRA-W) Pesticides Research Department GLP/GEP: Y Published: N	N	N	-	GTF	Y RAR 2017: KIIA 2.1.1; KIIA 2.1.3; KIIA 2.2; KIIA 2.4.1; KIIA 2.4.2; KIIA 2.6; KIIA 2.7 Monograph 1998:- Monograph Trimesium: -
KCA 2.1-006	[redacted]	2014	Relevance of phys-chem property data requirements of variant, Glyphosate Dimethylamine Salt (Glyphosate DMA) Report No.: NAFST-12-50 Document No.: NAFST-12-50 Dow AgroSciences LLC GLP/GEP: N Published: N	N	N	-	GRG	Y
KCA 2.1-007	[redacted]	1997	Glyphosate acid: Physical and Chemical Properties of Pure Material Report No.: RJ2400B Document No.: R61837/0062 Zeneca Agrochemicals, Jealott's Hill Research Station GLP/GEP: Y Published: N	N	N	-	SYN	Y RAR 2017: KIIA 2.1.3; KIIA 2.2; KIIA 2.4.1; KIIA 2.4.2; KIIA 2.5.1 Monograph 1998:- Monograph Trimesium: -
KCA 2.1-008	[redacted]	1997	Glyphosate acid: Physical and Chemical Properties of Technical Material Report No.: RJ2401B Document No.: -	N	N	-	SYN	Y RAR 2017: KIIA 2.1.3; KIIA 2.2; KIIA 2.4.1;

Data Point	Author(s)	Year	Title Report No. Document No. Source (where different from company) GLP/ Officially recognised testing facilities[2,3] Published or not	Vertebrate study Y/N	Data protection claimed Y/N	Justification if data protection is claimed	Owner	Previously used[1] Y/N If yes, for which data point-
			R61837/0061 Zeneca Agrochemicals, Jealott's Hill Research Station GLP/GEP: Y Published: N					KIIA 2.4.2; KIIA 2.7; KIIA 2.11.2; KIIA 2.14; KIIA 2.15 Monograph 1998:- Monograph Trimesium: -
KCA 2.1-009	[redacted]	2005	Determination of Color, Physical State, Odor, Oxidizing and reducing Action, Flammability, Explodability, pH, Viscosity and Density of GF-1667, a liquid Manufacturing-Use Product Containing Glyphosate Report No.: FAPC053278 Document No.: - Dow Agrosciences LLC, Supply R&D Laboratory Analytical Product Chemistry Center of Expertise GLP/GEP: Y Published: N	N	N	-	COR	Y RAR 2017: - Monograph 1998:- Doc L: IIA 2.1.3/06; IIA 2.2/07; IIA 2.4.1/05; IIA 2.4.2/05; IIA 2.11.1/05; IIA 2.12/01; IIA 2.13/06 Monograph Trimesium: -
KCA 2.2-001	[redacted]	1991	Glyphosate: Determination of vapour pressure Report No.: 6611-676/2-AR Document No.: - Hazleton UK GLP/GEP: Y Published: N	N	N	-	BCS	Y RAR 2017: - Monograph 1998: EG:AIIA-2.3 Monograph Trimesium: -
KCA 2.2-002	[redacted]	1990	Vapor pressure determination for Isopropylamine-Glyphosate salt Report No.: MSL-9762 Document No.: - Monsanto Company GLP/GEP: N Published: N	N	N	-	BCS	Y RAR 2017: - Monograph 1998: EG:AIIA-2.3 Monograph Trimesium: -

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KCA 2.2-003	[redacted]	1993	Glyphosate isopropylaminesalt vapour pressure Report No.: PR93/018 Document No.: - Dr. G. Krebs Analytik GLP/GEP: Y Published: N	N	N	-	ADM	Y RAR 2017: - Monograph 1998: EG:AIIA-2.3 Monograph Trimesium: -
KCA 2.2-004	[redacted]	1993	Glyphosate, ammonium salt: Determination of physico-chemical properties Report No.: 93/MON032/0343 Document No.: - Pharmaco-LSR Ltd GLP/GEP: Y Published: N	N	N	-	BCS	Y RAR 2017: - Monograph 1998: EG:AIIA-2.1; EG:AIIA-2.2; EG:AIIA-2.3; EG:AIIA-2.4; EG:AIIA-2.5; EG:AIIA-2.6; EG:AIIA-2.8; EG:AIIA-2.11; EG: AIIA-2.13; EG:AIIA-2.14 Monograph Trimesium: -
KCA 2.2-005	[redacted]	2012	Determination of physico-chemical properties of glyphosate potassium salt Report No.: 497741 Document No.: - NOTOX B.V. GLP/GEP: Y Published: N	N	N	-	GTF	Y RAR 2017: KIIA 2.3.1; KIIA 2.5.1; KIIA 2.8.1; KIIA 2.11.1; KIIA 2.13; KIIA 2.14; KIIA 2.15 Monograph 1998:- Monograph Trimesium: -

Data Point	Author(s)	Year	Title Report No. Document No. Source (where different from company) GLP/ Officially recognised testing facilities[2,3] Published or not	Vertebrate study Y/N	Data protection claimed Y/N	Justification if data protection is claimed	Owner	Previously used[1] Y/N If yes, for which data point-
KCA 2.2-006	[redacted]	2014	Relevance of phys-chem property data requirements of variant, Glyphosate Dimethylamine Salt (Glyphosate DMA) Report No.: NAFST-12-50 Document No.: NAFST-12-50 Dow AgroSciences LLC GLP/GEP: N Published: N	N	N	-	GRG	Y
KCA 2.2-007	[redacted]	1997	Glyphosate acid: Physical and Chemical Properties of Pure Material Report No.: RJ2400B Document No.: - R61837/0062 Zeneca Agrochemicals, Jealott's Hill Research Station GLP/GEP: Y Published: N	N	N	-	SYN	Y RAR 2017: KIIA 2.1.3; KIIA 2.2; KIIA 2.4.1; KIIA 2.4.2; KIIA 2.5.1 Monograph 1998:- Monograph Trimesium: -
KCA 2.3-001	[redacted]	1997	Glyphosate acid: Physical and Chemical Properties of Pure Material Report No.: RJ2400B Document No.: - R61837/0062 Zeneca Agrochemicals, Jealott's Hill Research Station GLP/GEP: Y Published: N	N	N	-	SYN	Y RAR 2017: KIIA 2.1.3; KIIA 2.2; KIIA 2.4.1; KIIA 2.4.2; KIIA 2.5.1 Monograph 1998:- Monograph Trimesium: -
KCA 2.3-002	[redacted]	1997	Glyphosate acid: Physical and Chemical Properties of Technical Material Report No.: RJ2401B Document No.: - R61837/0061 Zeneca Agrochemicals, Jealott's Hill Research Station GLP/GEP: Y Published: N	N	N	-	SYN	Y RAR 2017: KIIA 2.1.3; KIIA 2.2; KIIA 2.4.1; KIIA 2.4.2; KIIA 2.7; KIIA 2.11.2; KIIA 2.14; KIIA 2.15 Monograph 1998:- Monograph Trimesium: -

Data Point	Author(s)	Year	Title Report No. Document No. Source (where different from company) GLP/ Officially recognised testing facilities[2,3] Published or not	Vertebrate study Y/N	Data protection claimed Y/N	Justification if data protection is claimed	Owner	Previously used[1] Y/N If yes, for which data point-
KCA 2.3-003	[redacted]	1995	Determination of appearance of MON 77209 technical and MON 77209 pure Report No.: 134145 Document No.: - NOTOX B.V. GLP/GEP: Y Published: N	N	N	-	BCS	Y RAR 2017: - Monograph 1998: EG:AIIA-2.4 Monograph Trimesium: -
KCA 2.3-004	[redacted]	1993	Glyphosate, ammonium salt: Determination of physico-chemical properties Report No.: 93/MON032/0343 Document No.: - Pharmaco-LSR Ltd GLP/GEP: Y Published: N	N	N	-	BCS	Y RAR 2017: - Monograph 1998: EG:AIIA-2.1; EG:AIIA-2.2; EG:AIIA-2.3; EG:AIIA-2.4; EG:AIIA-2.5; EG:AIIA-2.6; EG:AIIA-2.8; EG:AIIA-2.11; EG: AIIA-2.13; EG:AIIA-2.14 Monograph Trimesium: -
KCA 2.3-005	[redacted]	2007	Physico-chemical properties of glyphosate potassium salt Report No.: MSL0021012 Document No.: MSL0021012 Wa/loon Agricultural Research Centre (CRA-W) Pesticides Research Department GLP/GEP: Y Published: N	N	N	-	GTF	Y RAR 2017: KIIA 2.1.1; KIIA 2.1.3; KIIA 2.2; KIIA 2.4.1; KIIA 2.4.2; KIIA 2.6; KIIA 2.7 Monograph 1998:- Monograph Trimesium: -

Data Point	Author(s)	Year	Title Report No. Document No. Source (where different from company) GLP/ Officially recognised testing facilities[2,3] Published or not	Vertebrate study Y/N	Data protection claimed Y/N	Justification if data protection is claimed	Owner	Previously used[1] Y/N If yes, for which data point-
KCA 2.3-006	[redacted]	2005	Determination of Color, Physical State, Odor, Oxidizing and reducing Action, Flammability, Explodability, pH, Viscosity and Density of GF-1667, a liquid Manufacturing-Use Product Containing Glyphosate Report No.: FAPC053278 Document No.: - Dow Agrosciences LLC, Supply R&D Laboratory Analytical Product Chemistry Center of Expertise GLP/GEP: Y Published: N	N	N	-	COR	Y RAR 2017: - Monograph 1998:- Doc L: IIA 2.1.3/06; IIA 2.2/07; IIA 2.4.1/05; IIA 2.4.2/05; IIA 2.11.1/05; IIA 2.12/01; IIA 2.13/06 Monograph Trimesium: -
KCA 2.4-001	[redacted]	2020	UV/Visible Absorption Data on Glyphosate (Glyphosate acid) and Glyphosate Isopropylamine (MON 0139) Report No.: TRR0000009 Document No.: TRR0000009 Monsanto Company GLP/GEP: Y Published: N	N	Y	First submission in EU	GRG	N
KCA 2.4-002	[redacted]	1997	Glyphosate acid: Physical and Chemical Properties of Pure Material Report No.: RJ2400B Document No.: - R61837/0062 Zeneca Agrochemicals, Jealott's Hill Research Station GLP/GEP: Y Published: N	N	N	-	SYN	Y RAR 2017: KIIA 2.1.3; KIIA 2.2; KIIA 2.4.1; KIIA 2.4.2; KIIA 2.5.1 Monograph 1998:- Monograph Trimesium: -
KCA 2.4-003	[redacted]	1992	Characterisation of Glyphosate (CAS No. 1071-83-6) Report No.: REF058-1 Document No.: - Cheminova Agro A/S, Analytical Department GLP/GEP: Y Published: N	N	N	-	BCS	Y RAR 2017: - Monograph 1998: EG:AIIA-2.5 Monograph Trimesium: -

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KCA 2.4-004	[redacted]	1990	IR-Spectra of Taifun 360 (= Taifun forte, Glyphosate tec.) Report No.: M doc used CHE96-00682, which is registration number used in monograph Document No.: - Frings Pharma GmbH GLP/GEP: N Published: N	N	N	-	ADM	Y RAR 2017: - Monograph 1998: EG:AIIA-2.5 Monograph Trimesium: -
KCA 2.4-005	[redacted]	1995	Determination of the UV-VIS absorption spectra of MON 77209 Pure (IPA salt) Report No.: 134178 Document No.: - NOTOX B.V. GLP/GEP: Y Published: N	N	N	-	BCS	Y RAR 2017: - Monograph 1998: EG:AIIA-2.5 Monograph Trimesium: -
KCA 2.4-006	[redacted]	1995	Determination of the IR-Spectrum of MON 77209 Pure (IPA salt) Report No.: 134156 Document No.: - NOTOX B.V. GLP/GEP: Y Published: N	N	N	-	BCS	Y RAR 2017: - Monograph 1998: EG:AIIA-2.5 Monograph Trimesium: -
KCA 2.4-007	[redacted]	1995	Determination of the 1H-NMR Spectrum of MON 77209 Pure (IPA salt) Report No.: 134167 Document No.: - NOTOX B.V. GLP/GEP: Y Published: N	N	N	-	BCS	Y RAR 2017: - Monograph 1998: EG:AIIA-2.5 Monograph Trimesium: -
KCA 2.4-008	[redacted]	1995	Determination of the mass spectrum of MON 77209 pure Report No.: V-95-110 Document No.: - TNO Nutrition and Food Research Institute GLP/GEP: N Published: N	N	N	-	GTF	Y RAR 2017: KIIA 2.5.1 Monograph 1998:- Monograph Trimesium: -

Data Point	Author(s)	Year	Title Report No. Document No. Source (where different from company) GLP/ Officially recognised testing facilities[2,3] Published or not	Vertebrate study Y/N	Data protection claimed Y/N	Justification if data protection is claimed	Owner	Previously used[1] Y/N If yes, for which data point-
KCA 2.4-009	[redacted]	1993	Glyphosate isopropylamine salt Spectra: UV, 1H-NMR, MS, IR Report No.: PR93/005 Document No.: - Dr. G. Krebs Analytik GLP/GEP: Y Published: N	N	N	-	ADM	Y RAR 2017: - Monograph 1998: EG: AIIA-2. 5 Monograph Trimesium: -
KCA 2.4-010	[redacted]	2012	Determination of Physico-chemical properties of glyphosate ammonium salt; MS spectrum and dissociation constant Report No.: 497739 Document No.: MSL0023949 NOTOX B.V. GLP/GEP: Y Published: N	N	N	-	GTF	Y RAR 2017: KIIA 2.5.1; KIIA 2.9.5 Monograph 1998:- Monograph Trimesium: -
KCA 2.4-011	[redacted]	1993	Glyphosate, ammonium salt: Determination of physico-chemical properties Report No.: 93/MON032/0343 Document No.: - Pharmaco-LSR Ltd GLP/GEP: Y Published: N	N	N	-	BCS	Y RAR 2017: - Monograph 1998:EG:AIIA-2.1; EG:AIIA-2.2; EG:AIIA-2.3; EG:AIIA-2.4; EG:AIIA-2.5; EG:AIIA-2.6; EG:AIIA-2.8; EG:AIIA-2.11; EG: AIIA-2.13; EG:AIIA-2.14 Monograph Trimesium: -
KCA 2.4-012	[redacted]	2012	Determination of physico-chemical properties of glyphosate potassium salt Report No.: 497741 Document No.: - NOTOX B.V. GLP/GEP: Y Published: N	N	N	-	GTF	Y RAR 2017: KIIA 2.3.1; KIIA 2.5.1; KIIA 2.8.1; KIIA 2.11.1; KIIA 2.13; KIIA 2.14;

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								KIIA 2.15 Monograph 1998:- Monograph Trimesium: -
KCA 2.4-013	[redacted]	2012	Determination of 1H NMR Spectrum - Glyphosate Potassium Salt Report No.: 497740 Document No.: MSL0024019 NOTOX B.V. GLP/GEP: Y Published: N	N	N	-	GTF	Y RAR 2017: KIIA 2.5.1 Monograph 1998:- Monograph Trimesium: -
KCA 2.4-014	[redacted]	2014	Relevance of phys-chem property data requirements of variant, Glyphosate Dimethylamine Salt (Glyphosate DMA) Report No.: NAFST-12-50 Document No.: NAFST-12-50 Dow AgroSciences LLC GLP/GEP: N Published: N	N	N	-	GRG	Y
KCA 2.4-015	[redacted]	2013	Analytical reference standard, Certificate of analysis, Expiration extension - NNG Report No.: 3034 Document No.: - Monsanto GLP/GEP: N Published: N	N	N	-	GTF	Y RAR 2017: KIIA 2.5.2 Monograph 1998:- Monograph Trimesium: -
KCA 2.4-016	[redacted]	2011	UV/VIS spectral analysis and IR (infrared) spectral analysis of N-nitrosoglyphosate (NNG) Report No.: PCH-2011-0666 Document No.: - Monsanto Company, Direct Chemistry Analytical Team GLP/GEP: Y Published: N	N	N	-	GTF	Y RAR 2017: KIIA 2.5.2 Monograph 1998:- Monograph Trimesium: -
KCA 2.4-017	[redacted]	1995	Spectral information for N-nitrosoglyphosate, Lot No. NPD-9205-4204-A Report No.: AA016556 Document No.: - Monsanto Company GLP/GEP: N Published: N	N	N	-	GTF	Y RAR 2017: KIIA 2.5.2 Monograph 1998:- Monograph Trimesium: -

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KCA 2.4-018	[redacted]	2011	IR (infrared) spectral analysis of Formaldehyde Report No.: PCH-2011-0667 Document No.: - Monsanto Company, Direct Chemistry Analytical Team GLP/GEP: Y Published: N	N	N	-	GTF	Y RAR 2017: KIIA 2.5.2 Monograph 1998:- Monograph Trimesium: -
KCA 2.4-019	[redacted]	1992	Characterisation of formaldehyde (CAS No. 50-00-0), ca. 20% in water and 10% methanol Report No.: REF062-01 Document No.: - Cheminova Agro A/S, Analytical Department GLP/GEP: Y Published: N	N	N	-	GTF	Y RAR 2017: KIIA 2.5.2 Monograph 1998: EG:AIIA-2.5 Monograph Trimesium: -
KCA 2.5-001	[redacted]	2020	Determination of the Water Solubility of Glyphosate by the Shake Flask Method Report No.: 139K-101 Document No.: EAG-2019-0020 MSL0030498 Eurofins EAG Agroscience, LLC GLP/GEP: Y Published: N	N	Y	First submission in EU	GRG	N
KCA 2.5-002	[redacted]	1990	Solubility determination of Glyphosate (PMG) in water Report No.: 257207 Document No.: - RCC Umweltchemie AG GLP/GEP: Y Published: N	N	N	-	BCS	Y RAR 2017: - Monograph 1998: EG:AIIA-2.6 Monograph Trimesium: -
KCA 2.5-003	[redacted]	1995	Determination of the water solubility of MON- 77209 (Pure) Report No.: 134191 Document No.: - NOTOX B.V. GLP/GEP: Y Published: N	N	N	-	BCS	Y RAR 2017: - Monograph 1998: EG:AIIA-2.6 Monograph Trimesium: -
KCA 2.5-004	[redacted]	2020	Determination of the Water Solubility of Glyphosate Ammonium Salt by the Shake Flask Method Report No.: 139K-107 Document No.: EUR-2019-0471	N	Y	First submission in EU	GRG	N

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			MSL0030983 Eurofins EAG Agroscience, LLC GLP/GEP: Y Published: N					
KCA 2.5-005	[redacted]	1993	Glyphosate, ammonium salt: Determination of physico-chemical properties Report No.: 93/MON032/0343 Document No.: - Pharmaco-LSR Ltd GLP/GEP: Y Published: N	N	N	-	BCS	Y RAR 2017: - Monograph 1998: EG:AIIA-2.1; EG:AIIA-2.2; EG:AIIA-2.3; EG:AIIA-2.4; EG:AIIA-2.5; EG:AIIA-2.6; EG:AIIA-2.8; EG:AIIA-2.11; EG: AIIA-2.13; EG:AIIA-2.14 Monograph Trimesium: -
KCA 2.5-006	[redacted]	2007	Physico-chemical properties of glyphosate potassium salt Report No.: MSL0021012 Document No.: MSL0021012 Wa/loon Agricultural Research Centre (CRA-W) Pesticides Research Department GLP/GEP: Y Published: N	N	N	-	GTF	Y RAR 2017: KIIA 2.1.1; KIIA 2.1.3; KIIA 2.2; KIIA 2.4.1; KIIA 2.4.2; KIIA 2.6; KIIA 2.7 Monograph 1998:- Monograph Trimesium: -
KCA 2.5-007	[redacted]	2014	Relevance of phys-chem property data requirements of variant, Glyphosate Dimethylamine Salt (Glyphosate DMA) Report No.: NAFST-12-50 Document No.: NAFST-12-50	N	N	-	GRG	Y

Data Point	Author(s)	Year	Title Report No. Document No. Source (where different from company) GLP/ Officially recognised testing facilities[2,3] Published or not	Vertebrate study Y/N	Data protection claimed Y/N	Justification if data protection is claimed	Owner	Previously used[1] Y/N If yes, for which data point-
			Dow AgroSciences LLC GLP/GEP: N Published: N					
KCA 2.5-008	[redacted]	2020	Determination of Water Solubility of HMPA (hydroxymethylphosphonic acid) using the Shake Flask Method Report No.: 89593 Document No.: EAG-2019-0462 MSL0030981 Eurofins EAG Agroscience, LLC GLP/GEP: Y Published: N	N	Y	First submission in EU	GRG	N
KCA 2.6-001	[redacted]	1997	Glyphosate acid: Physical and Chemical Properties of Technical Material Report No.: RJ2401B Document No.: - R61837/0061 Zeneca Agrochemicals, Jealott's Hill Research Station GLP/GEP: Y Published: N	N	N	-	SYN	Y RAR 2017: KIIA 2.1.3; KIIA 2.2; KIIA 2.4.1; KIIA 2.4.2; KIIA 2.7; KIIA 2.11.2; KIIA 2.14; KIIA 2.15 Monograph 1998:- Monograph Trimesium: -
KCA 2.6-002	[redacted]	1991	Glyphosate: Determination of solubility in organic solvents Report No.: 6759-676/5 Document No.: 81-GLY Hazleton UK GLP/GEP: Y Published: N	N	N	-	BCS	Y RAR 2017: - Monograph 1998: EG:AIIA-2.7 Monograph Trimesium: -
KCA 2.6-003	[redacted]	1993	Glyphosate isopropylamine salt, Solubility in organic solvents Report No.: PR93/014 Document No.: - Dr. G. Krebs Analytik GLP/GEP: Y Published: N	N	N	-	ADM	Y RAR 2017: - Monograph 1998: EG:AIIA-2.7 Monograph Trimesium: -
KCA 2.6-004	[redacted]	1992	Glyphosate IPA salt: Determination of relative density Report No.: 7067-676/7-1 Document No.: -	N	N	-	BCS	Y RAR 2017: - Monograph

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			Hazleton UK GLP/GEP: Y Published: N					1998: EG:AIIA-2.2 Monograph Trimesium: -
KCA 2.6-005	[redacted]	1999	The solubility of sodium and ammonium glyphosate salts in organic solvents Report No.: 12324 Document No.: MLL31266 Department de Phytopharmacie, Personnalite Juridique, Du Centre De Recherches Agronomiques De Gembloux GLP/GEP: Y Published: N	N	N	-	GTF	Y RAR 2017: KIIA 2.7 Monograph 1998:- Monograph Trimesium: -
KCA 2.6-006	[redacted]	2007	Physico-chemical properties of glyphosate potassium salt Report No.: MSL0021012 Document No.: MSL0021012 Wa/loon Agricultural Research Centre (CRA-W) Pesticides Research Department GLP/GEP: Y Published: N	N	N	-	GTF	Y RAR 2017: KIIA 2.1.1; KIIA 2.1.3; KIIA 2.2; KIIA 2.4.1; KIIA 2.4.2; KIIA 2.6; KIIA 2.7 Monograph 1998:- Monograph Trimesium: -
KCA 2.6-007	[redacted]	2014	Relevance of phys-chem property data requirements of variant, Glyphosate Dimethylamine Salt (Glyphosate DMA) Report No.: NAFST-12-50 Document No.: NAFST-12-50 Dow AgroSciences LLC GLP/GEP: N Published: N	N	N	-	GRG	Y
KCA 2.7-001	[redacted]	2020	Determination of the n-Octanol/Water Partition Coefficient of Glyphosate Using the Shake Flask Method Report No.: 139K-102 Document No.: EAG-2019-0019 MSL0030497 Eurofins EAG Agroscience, LLC GLP/GEP: Y Published: N	N	Y	First submission in EU	GRG	N

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KCA 2.7-002	[redacted]	1990	Determination of the partition coefficient of 14C-Glyphosate (PMG), (N-Octanol/Water) Report No.: 238498 Document No.: - RCC Umweltchemie AG GLP/GEP: Y Published: N	N	N	-	BCS	Y RAR 2017: - Monograph 1998: EG:AIIA-2.8 Monograph Trimesium: -
KCA 2.7-003	[redacted]	1987	Octanol/water partition coefficient of Glyphosate Report No.: MSL-7241 Document No.: MSL-7241 - GLP/GEP: N Published: N	N	N	-	BCS	Y RAR 2017: - Monograph 1998: EG:AIIA-2.8 Monograph Trimesium: -
KCA 2.7-004	[redacted]	1995	Determination of the partition coefficient (N-octanol/water) of MON 77209 Pure Report No.: 134224 Document No.: - NOTOX B.V. GLP/GEP: Y Published: N	N	N	-	BCS	Y RAR 2017: - Monograph 1998: EG:AIIA-2.8 Monograph Trimesium: -
KCA 2.7-005	[redacted]	1993	Glyphosate, ammonium salt: Determination of physico-chemical properties Report No.: 93/MON032/0343 Document No.: - Pharmaco-LSR Ltd GLP/GEP: Y Published: N	N	N	-	BCS	Y RAR 2017: - Monograph 1998: EG:AIIA-2.1; EG:AIIA-2.2; EG:AIIA-2.3; EG:AIIA-2.4; EG:AIIA-2.5; EG:AIIA-2.6; EG:AIIA-2.8; EG:AIIA-2.11; EG: AIIA-2.13; EG:AIIA-

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								2.14 Monograph Trimesium: -
KCA 2.7-006	[redacted]	2012	Determination of physico-chemical properties of glyphosate potassium salt Report No.: 497741 Document No.: - NOTOX B.V. GLP/GEP: Y Published: N	N	N	-	GTF	Y RAR 2017: KIIA 2.3.1; KIIA 2.5.1; KIIA 2.8.1; KIIA 2.11.1; KIIA 2.13; KIIA 2.14; KIIA 2.15 Monograph 1998:- Monograph Trimesium: -
KCA 2.7-007	[redacted]	2014	Relevance of phys-chem property data requirements of variant, Glyphosate Dimethylamine Salt (Glyphosate DMA) Report No.: NAFST-12-50 Document No.: NAFST-12-50 Dow AgroSciences LLC GLP/GEP: N Published: N	N	N	-	GRG	Y
KCA 2.7-008	[redacted]	2020	Determination of the n-Octanol/Water Partition Coefficient of N-Acetyl Glyphosate Using the Shake Flask Method Report No.: 139K-104 Document No.: EAG-2019-0018 MSL0030496 Eurofins EAG Agroscience, LLC GLP/GEP: Y Published: N	N	Y	First submission in EU	GRG	N
KCA 2.7-009	[redacted]	2020	Determination of the n-Octanol/Water Partition Coefficient of AMPA Using the Shake Flask Method Report No.: 139K-103 Document No.: EAG-2019-0017 MSL0030495 Eurofins EAG Agroscience, LLC GLP/GEP: Y Published: N	N	Y	First submission in EU	GRG	N

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KCA 2.7-010	[redacted]	2020	Determination of the n-octanol/Water Partition Coefficient of HMPA (hydroxymethylphosphonic acid) using the Shake Flask Method Report No.: 89592 Document No.: EAG-2019-0463 MSL0030982 Eurofins EAG Agroscience, LLC GLP/GEP: Y Published: N	N	Y	First submission in EU	GRG	N
KCA 2.8-001	[redacted]	1995	Determination of the dissociation constant(s) of Glyfosaat in water Report No.: 141828 Document No.: - NOTOX B.V. GLP/GEP: Y Published: N	N	N	-	BCS	Y RAR 2017: - Monograph 1998: EG:AIIA-2.9 Monograph Trimesium: -
KCA 2.8-002	[redacted]	1995	Glyphosate - Determination of the dissociation constant Report No.: 95-044-1020 Document No.: - Springborn Laboratories Inc., Environmental Sciences Division GLP/GEP: Y Published: N	N	N	-	SIN	Y RAR 2017: - Monograph 1998: EG:AIIA-2.9 Monograph Trimesium: -
KCA 2.8-003	[redacted]	1995	Determination of the dissociation constant(s) of MON 77209 Pure in water Report No.: 134213 Document No.: - NOTOX B.V. GLP/GEP: Y Published: N	N	N	-	BCS	Y RAR 2017: - Monograph 1998: EG:AIIA-2.9 Monograph Trimesium: -
KCA 2.8-004	[redacted]	2012	Determination of physico-chemical properties of glyphosate potassium salt Report No.: 497741 Document No.: - NOTOX B.V. GLP/GEP: Y Published: N	N	N	-	GTF	Y RAR 2017: KIIA 2.3.1; KIIA 2.5.1; KIIA 2.8.1; KIIA 2.11.1; KIIA 2.13; KIIA 2.14;

Data Point	Author(s)	Year	Title Report No. Document No. Source (where different from company) GLP/ Officially recognised testing facilities[2,3] Published or not	Vertebrate study Y/N	Data protection claimed Y/N	Justification if data protection is claimed	Owner	Previously used[1] Y/N If yes, for which data point-
								KIIA 2.15 Monograph 1998:- Monograph Trimesium: -
KCA 2.8-005	[redacted]	2012	Determination of Physico-chemical properties of glyphosate ammonium salt; MS spectrum and dissociation constant Report No.: 497739 Document No.: MSL0023949 NOTOX B.V. GLP/GEP: Y Published: N	N	N	-	GTF	Y RAR 2017: KIIA 2.5.1; KIIA 2.9.5 Monograph 1998:- Monograph Trimesium: -
KCA 2.8-006	[redacted]	2014	Relevance of phys-chem property data requirements of variant, Glyphosate Dimethylamine Salt (Glyphosate DMA) Report No.: NAFST-12-50 Document No.: NAFST-12-50 Dow AgroSciences LLC GLP/GEP: N Published: N	N	N	-	GRG	Y
KCA 2.8-007	[redacted]	1992	The dissociation constants of aminomethylphosphonic acid in water Report No.: PML 1992-C142 Document No.: - TNO Prins Maurits Laboratory, TNO Defence Research GLP/GEP: Y Published: N	N	N	-	LUX	Y RAR 2017: - Monograph 1998: EG:AIIA-2.9 Monograph Trimesium: -
KCA 2.9-001	[redacted]	2019	Glyphosate, technical substance: Flammability (Solids) Report No.: PS20190309-1 Document No.: - Siemens AG, Prozess-Sicherheit GLP/GEP: Y Published: N	N	Y	First submission in EU	GRG	N
KCA 2.9-002	[redacted]	2019	Glyphosate, technical substance: Test for self-heating substances Report No.: PS20190309-2 Document No.: - Siemens AG, Prozess-Sicherheit GLP/GEP: Y Published: N	N	Y	First submission in EU	GRG	N

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KCA 2.9-003	[redacted]	1997	Glyphosate acid: Physical and Chemical Properties of Technical Material Report No.: RJ2401B Document No.: - R61837/0061 Zeneca Agrochemicals, Jealott's Hill Research Station GLP/GEP: Y Published: N	N	N	-	SYN	Y RAR 2017: KIIA 2.1.3; KIIA 2.2; KIIA 2.4.1; KIIA 2.4.2; KIIA 2.7; KIIA 2.11.2; KIIA 2.14; KIIA 2.15 Monograph 1998:- Monograph Trimesium: -
KCA 2.9-004	[redacted]	1989	Determination of the flammability of Glyphosate Report No.: 015244 Document No.: - RCC NOTOX B.V. GLP/GEP: Y Published: N	N	N	-	BCS	Y RAR 2017: - Monograph 1998: EG:AIIA-2.11 Monograph Trimesium: -
KCA 2.9-005	[redacted]	1995	Determination of the flammability of MON 77209 (technical) Report No.: 134235 Document No.: - NOTOX B.V. GLP/GEP: Y Published: N	N	N	-	BCS	Y RAR 2017: - Monograph 1998: EG:AIIA-2.11 Monograph Trimesium: -
KCA 2.9-006	[redacted]	1995	Determination of the relative self-ignition temperature of MON 77209 (technical) Report No.: 134257 Document No.: - NOTOX B.V. GLP/GEP: Y Published: N	N	N	-	BCS	Y RAR 2017: - Monograph 1998: EG:AIIA-2.11 Monograph Trimesium: -
KCA 2.9-007	[redacted]	1993	Glyphosate, ammonium salt: Determination of physico-chemical properties Report No.: 93/MON032/0343	N	N	-	BCS	Y RAR 2017: - Monograph

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			Document No.: - Pharmaco-LSR Ltd GLP/GEP: Y Published: N					1998: EG:AIIA-2.1; EG:AIIA-2.2; EG:AIIA-2.3; EG:AIIA-2.4; EG:AIIA-2.5; EG:AIIA-2.6; EG:AIIA-2.8; EG:AIIA-2.11; EG: AIIA-2.13; EG:AIIA-2.14 Monograph Trimesium: -
KCA 2.9-008	[redacted]	2013	Determination of the relative self-ignition temperature of glyphosate potassium salt Report No.: 503444 Document No.: MSL0025288 WIL Research Europe B.V. GLP/GEP: Y Published: N	N	N	-	GTF	Y RAR 2017: KIIA 2.11.2 Monograph 1998:- Monograph Trimesium: -
KCA 2.9-009	[redacted]	2012	Determination of physico-chemical properties of glyphosate potassium salt Report No.: 497741 Document No.: - NOTOX B.V. GLP/GEP: Y Published: N	N	N	-	GTF	Y RAR 2017: KIIA 2.3.1; KIIA 2.5.1; KIIA 2.8.1; KIIA 2.11.1; KIIA 2.13; KIIA 2.14; KIIA 2.15 Monograph 1998:- Monograph Trimesium: -

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KCA 2.9-010	[redacted]	2012	Determination of Surface Tension, Explosive Properties and Auto-Ignition Temperature (liquids and gases) of GF-1667 Report No.: ABY0190 Document No.: NAFST-11-251 Huntingdon Life Sciences Ltd. GLP/GEP: Y Published: N	N	N	-	COR	Y RAR 2017: - Monograph 1998:- Doc L: IIA 2.11.2/04; IIA 2.13/07; IIA 2.14/06 Monograph Trimesium: -
KCA 2.10-001	[redacted]	2005	Determination of Color, Physical State, Odor, Oxidizing and reducing Action, Flammability, Explodability, pH, Viscosity and Density of GF-1667, a liquid Manufacturing-Use Product Containing Glyphosate Report No.: FAPC053278 Document No.: - Dow Agrosciences LLC, Supply R&D Laboratory Analytical Product Chemistry Center of Expertise GLP/GEP: Y Published: N	N	N	-	COR	Y RAR 2017: - Monograph 1998:- Doc L: IIA 2.1.3/06; IIA 2.2/07; IIA 2.4.1/05; IIA 2.4.2/05; IIA 2.11.1/05; IIA 2.12/01; IIA 2.13/06 Monograph Trimesium: -
KCA 2.11-002	[redacted]	1994	Expert statement on the explosive properties of Glyfosate technical Report No.: 122377 Document No.: - NOTOX Safety & Environmental Research B.V. GLP/GEP: N Published: N	N	N	-	ARY	Y RAR 2017: - Monograph 1998: EG:AIIA-2.15 Monograph Trimesium: -

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KCA 2.11-003	[redacted]	1995	Determination of explosive properties of MON 77209 technical Report No.: 134246 Document No.: - NOTOX B.V. GLP/GEP: Y Published: N	N	N	-	BCS	Y RAR 2017: - Monograph 1998: EG :AIIA-2 .13 Monograph Trimesium: -
KCA 2.11-004	[redacted]	1993	Glyphosate, ammonium salt: Determination of physico-chemical properties Report No.: 93/MON032/0343 Document No.: - Pharmaco-LSR Ltd GLP/GEP: Y Published: N	N	N	-	BCS	Y RAR 2017: - Monograph 1998: EG:AIIA-2.1; EG:AIIA-2.2; EG:AIIA-2.3; EG:AIIA-2.4; EG:AIIA-2.5; EG:AIIA-2.6; EG:AIIA-2.8; EG:AIIA-2.11; EG: AIIA-2.13; EG:AIIA-2.14 Monograph Trimesium: -
KCA 2.11-005	[redacted]	2012	Determination of physico-chemical properties of glyphosate potassium salt Report No.: 497741 Document No.: - NOTOX B.V. GLP/GEP: Y Published: N	N	N	-	GTF	Y RAR 2017: KIIA 2.3.1; KIIA 2.5.1; KIIA 2.8.1; KIIA 2.11.1; KIIA 2.13; KIIA 2.14; KIIA 2.15 Monograph 1998:- Monograph Trimesium: -

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KCA 2.11-006	[redacted]	2012	Determination of Surface Tension, Explosive Properties and Auto-Ignition Temperature (liquids and gases) of GF-1667 Report No.: ABY0190 Document No.: NAFST-11-251 Huntingdon Life Sciences Ltd. GLP/GEP: Y Published: N	N	N	-	COR	Y RAR 2017: - Monograph 1998:- Doc L: IIA 2.11.2/04; IIA 2.13/07; IIA 2.14/06 Monograph Trimesium: -
KCA 2.11-007	[redacted]	2005	Determination of Color, Physical State, Odor, Oxidizing and reducing Action, Flammability, Explodability, pH, Viscosity and Density of GF-1667, a liquid Manufacturing-Use Product Containing Glyphosate Report No.: FAPC053278 Document No.: - Dow Agrosciences LLC, Supply R&D Laboratory Analytical Product Chemistry Center of Expertise GLP/GEP: Y Published: N	N	N	-	COR	Y RAR 2017: - Monograph 1998:- Doc L: IIA 2.1.3/06; IIA 2.2/07; IIA 2.4.1/05; IIA 2.4.2/05; IIA 2.11.1/05; IIA 2.12/01; IIA 2.13/06 Monograph Trimesium: -
KCA 2.12-001	[redacted]	1997	Glyphosate acid: Physical and Chemical Properties of Technical Material Report No.: RJ2401B Document No.: - R61837/0061 Zeneca Agrochemicals, Jealott's Hill Research Station GLP/GEP: Y Published: N	N	N	-	SYN	Y RAR 2017: KIIA 2.1.3; KIIA 2.2; KIIA 2.4.1; KIIA 2.4.2; KIIA 2.7; KIIA 2.11.2; KIIA 2.14; KIIA 2.15 Monograph 1998:- Monograph Trimesium: -
KCA 2.12-002	[redacted]	1991	Glyphosate: Determination of surface tension Report No.: 6760-676/5 Document No.: - Hazleton UK	N	N	-	BCS	Y RAR 2017: - Monograph 1998:

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			GLP/GEP: Y Published: N					EG:AIIA-2.14 Monograph Trimesium: -
KCA 2.12-003	[redacted].	1995	Determination of the surface tension of an aqueous solution of MON 77209 technical (IPA salt) Report No.: 134268 Document No.: - NOTOX B.V. GLP/GEP: Y Published: N	N	N	-	BCS	Y RAR 2017: - Monograph 1998: EG:AIIA-2.14 Monograph Trimesium: -
KCA 2.12-004	[redacted]	1993	Glyphosate, ammonium salt: Determination of physico-chemical properties Report No.: 93/MON032/0343 Document No.: - Pharmaco-LSR Ltd GLP/GEP: Y Published: N	N	N	-	BCS	Y RAR 2017: - Monograph 1998: EG:AIIA-2.1; EG:AIIA-2.2; EG:AIIA-2.3; EG:AIIA-2.4; EG:AIIA-2.5; EG:AIIA-2.6; EG:AIIA-2.8; EG:AIIA-2.11; EG:AIIA-2.13; EG:AIIA-2.14 Monograph Trimesium: -
KCA 2.12-005	[redacted]	2012	Determination of physico-chemical properties of glyphosate potassium salt Report No.: 497741 Document No.: - NOTOX B.V. GLP/GEP: Y Published: N	N	N	-	GTF	Y RAR 2017: KIIA 2.3.1; KIIA 2.5.1; KIIA 2.8.1; KIIA 2.11.1; KIIA 2.13; KIIA 2.14; KIIA 2.15 Monograph 1998:-

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								Monograph Trimesium: -
KCA 2.12-006	[redacted]	2012	Determination of Surface Tension, Explosive Properties and Auto-Ignition Temperature (liquids and gases) of GF-1667 Report No.: ABY0190 Document No.: NAFST-11-251 Huntingdon Life Sciences Ltd. GLP/GEP: Y Published: N	N	N	-	COR	Y RAR 2017: - Monograph 1998:- Doc L: IIA 2.11.2/04; IIA 2.13/07; IIA 2.14/06 Monograph Trimesium: -
KCA 2.13-001	[redacted]	1997	Glyphosate acid: Physical and Chemical Properties of Technical Material Report No.: RJ2401B Document No.: - R61837/0061 Zeneca Agrochemicals, Jealott's Hill Research Station GLP/GEP: Y Published: N	N	N	-	SYN	Y RAR 2017: KIIA 2.1.3; KIIA 2.2; KIIA 2.4.1; KIIA 2.4.2; KIIA 2.7; KIIA 2.11.2; KIIA 2.14; KIIA 2.15 Monograph 1998:- Monograph Trimesium: -
KCA 2.13-002	[redacted]	1995	Determination of the oxidising properties of MON 77209 technical Report No.: 134279 Document No.: - NOTOX B.V. GLP/GEP: Y Published: N	N	N	-	BCS	Y RAR 2017: - Monograph 1998: EG:AIIA-2.15 Monograph Trimesium: -
KCA 2.13-003	[redacted]	1993	Glyphosate, ammonium salt: Determination of physico-chemical properties Report No.: 93/MON032/0343 Document No.: - Pharmaco-LSR Ltd GLP/GEP: Y Published: N	N	N	-	BCS	Y RAR 2017: - Monograph 1998: EG:AIIA-2.1; EG:AIIA-2.2; EG:AIIA-

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								2.3; EG:AIIA-2.4; EG:AIIA-2.5; EG:AIIA-2.6; EG:AIIA-2.8; EG:AIIA-2.11; EG: AIIA-2.13; EG:AIIA-2.14 Monograph Trimesium: -
KCA 2.13-004	[redacted]	2012	Determination of physico-chemical properties of glyphosate potassium salt Report No.: 497741 Document No.: - NOTOX B.V. GLP/GEP: Y Published: N	N	N	-	GTF	Y RAR 2017: KIIA 2.3.1; KIIA 2.5.1; KIIA 2.8.1; KIIA 2.11.1; KIIA 2.13; KIIA 2.14; KIIA 2.15 Monograph 1998:- Monograph Trimesium: -
KCA 2.13-005	[redacted]	2012	Determination of Oxidising Properties (liquids) for GF-1667 Report No.: ABY0212 Document No.: NAFST-12-47 Huntingdon Life Sciences Ltd. GLP/GEP: Y Published: N	N	N	-	COR	Y RAR 2017: - Monograph 1998:- Doc L: IIA 2.15/05 Monograph Trimesium: -
KCA 2.14-001	[redacted]	1988	Relative density 20/4 of Glyphosate acid (99.5) Report No.: - Document No.: AA016554 Monsanto Europe N.V. GLP/GEP: N Published: N	N	N	-	BCS	Y RAR 2017: - Monograph 1998:EG: AIIA-2.2 Monograph Trimesium: -

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KCA 2.14-002	[redacted]	1997	Glyphosate acid: Physical and Chemical Properties of Pure Material Report No.: RJ2400B Document No.: - R61837/0062 Zeneca Agrochemicals, Jealott's Hill Research Station GLP/GEP: Y Published: N	N	N	-	SYN	Y RAR 2017: KIIA 2.1.3; KIIA 2.2; KIIA 2.4.1; KIIA 2.4.2; KIIA 2.5.1; Monograph 1998:- Monograph Trimesium: -
KCA 2.14-003	[redacted]	1992	Glyphosate IPA salt: Determination of relative density Report No.: 7067-676/7-1 Document No.: - Hazleton UK GLP/GEP: Y Published: N	N	N	-	BCS / FMC	Y RAR 2017: - Monograph 1998: EG:AIIA-2.2 Monograph Trimesium: -
KCA 2.14-004	[redacted]	1993	Glyphosate, ammonium salt: Determination of physico-chemical properties Report No.: 93/MON032/0343 Document No.: - Pharmaco-LSR Ltd GLP/GEP: Y Published: N	N	N	-	BCS	Y RAR 2017: - Monograph 1998: EG:AIIA-2.1; EG:AIIA-2.2; EG:AIIA-2.3; EG:AIIA-2.4; EG:AIIA-2.5; EG:AIIA-2.6; EG:AIIA-2.8; EG:AIIA-2.11; EG: AIIA-2.13; EG:AIIA-2.14 Monograph Trimesium: -

Data Point	Author(s)	Year	Title Report No. Document No. Source (where different from company) GLP/ Officially recognised testing facilities[2,3] Published or not	Vertebrate study Y/N	Data protection claimed Y/N	Justification if data protection is claimed	Owner	Previously used[1] Y/N If yes, for which data point-
KCA 2.14-005	[redacted]	2007	Physico-chemical properties of glyphosate potassium salt Report No.: MSL0021012 Document No.: MSL0021012 Wa/loon Agricultural Research Centre (CRA-W) Pesticides Research Department GLP/GEP: Y Published: N	N	N	-	GTF	Y RAR 2017: KIIA 2.1.1; KIIA 2.1.3; KIIA 2.2; KIIA 2.4.1; KIIA 2.4.2; KIIA 2.6; KIIA 2.7 Monograph 1998:- Monograph Trimesium: -
KCA 2.14-006	[redacted]	2005	Determination of Color, Physical State, Odor, Oxidizing and reducing Action, Flammability, Explodability, pH, Viscosity and Density of GF-1667, a liquid Manufacturing-Use Product Containing Glyphosate Report No.: FAPC053278 Document No.: - Dow Agrosciences LLC GLP/GEP: Y Published: N	N	N	-	COR	Y RAR 2017: - Monograph 1998:- Doc L: IIA 2.1.3/06; IIA 2.2/07; IIA 2.4.1/05; IIA 2.4.2/05; IIA 2.11.1/05; IIA 2.12/01; IIA 2.13/06 Monograph Trimesium: -

[1] In order to facilitate the compilation of the final list of the tests and studies relied upon and the corresponding data protection, indicate whether the study was used in the previous DAR/RAR or, when the information is available, whether the study was already submitted in the framework of national authorisations.
[2] See Art.3 of Annex of Regulation No 283/2013 and 284/2013
[3] The RMS shall check that the GLP statement has been properly signed in the study report, that the study results are properly reported in accordance with GLP standards and following the relevant guidance by OECD on the review of the GLP status of non-clinical safety data (currently under development).