IFA
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Deutschen Gesetzlichen Unfallversicherung

MEGA evaluations for the preparation of REACH exposure scenarios for N-methyl-2-pyrrolidone (vapour)

1 Introduction

The measured data for workplace exposure evaluated in the following have been gathered and documented in accordance with the principles of the measurement system of the German social accident insurance institutions for exposure assessment (MGU[1], formerly BGMG). The quality of the MGU is upheld by a quality management system that in essence satisfies the requirements of DIN EN ISO 9001. The test laboratories are operated in accordance with DIN EN ISO 17025 “General requirements for the competence of testing and calibration laboratories”.

To measure N-methyl-2-pyrrolidone exposure at the workplace, a defined volume of air is sucked by a suitable pump through a silica gel tube. The hazardous substance contained in the air is adsorbed by the silica gel tube. Qualitative and quantitative analysis are performed by gas chromatography with a nitrogen phosphorus detector. The quantification limit is 0.42 mg/m³ for a test air volume of 40 L. Source: Amines, aliphatic I (ref. no. 6072). In: IFA-Arbeitsmappe Messung von Gefahrstoffen. 37. Lfg. X/2006. Ed.: Deutsche Gesetzliche Unfallversicherung (DGUV), Berlin. Erich Schmidt, Berlin, 2011 – loose-leaf edition.

All the surveyed data in the MGU are brought together in the MEGA exposure database (measured data on exposure to hazardous substances at the workplace). If individual values fall below the measurement method’s analytical quantification limit, half the value is adopted in the evaluation. The MEGA^{Pro} software developed by the IFA (formerly BGIA) makes it possible to statistically analyse the data of the MEGA exposure database on the basis of various selection criteria and evaluation strategies.

[1] Gabriel, S.; Koppisch, D.; Range, D.: The MGU – a monitoring system for the collection and documentation of valid workplace exposure data. Gefahrstoffe – Reinhalt. Luft 70 (2010) No. 1/2, pp. 43-49 http://www.dguv.de/ifa, Webcode m200066

2 Data situation and evaluation strategy

2.1 Overview of the measured values collected in the MGU, data period 2000 to 2010

N-methyl-2-pyrrolidone (vapour) with a workplace limit of 82 mg/m³
Information on the sampling systems can be found in the IFA work folder (IFA-Arbeitsmappe, in German).

General description	Number of measured values (%)
Total	647
Type of sampling: Stationary	329 (50.9%)
Type of sampling: Personal	318 (49.2%)
Sampling time ≥ 1 h and exposure time ≥ 6 h (comparable to shift measurements)	510 (78.8%)
Sampling time < 1 h or exposure time < 6 h	137 (21.2%)
Number of data < quantification limit (Values < quantification limit were adopted in statistics with half their values)	276 (42.7%)
Number of data > limit value	7 (1.1%)
Number of data ≥ quantification limit and ≤ limit value	364 (56.3%)
Examples: Exposure conditions	
Without mechanical ventilation With mechanical ventilation No details	158 417 59
Without local exhaust ventilation With local exhaust ventilation No details	169 372 100
General description of N-methyl-2-pyrrolidone (vapour) measurements in 80 branches of industry and 187 work areas	

2.2 Criteria for inclusion of measured data in the evaluation

- Measured data relating to exposure
- Sampling time ≥ 1 hour
- Exposure time ≥ 6 hours
- Data sets comprising fewer than ten measured data were disregarded.

2.3 Evaluation strategy

The evaluation was performed on the basis of industry groups (Appendix 1) and work area groups (Appendix 2) and broken down further according to type of sampling (stationary or personal) and presence of a local exhaust ventilation device. Appendix 3 shows the assignment of work area and industry groups.

3 Abbreviations and indices

The following abbreviations and indices are used in the evaluation tables:

+ The distribution value is below the largest analytical quantification limit in the data set.

$ With reference to the given limit value, the percentage of values below the limit value is given.

! The number of measured values below the analytical quantification limit (a. q.) is greater than the number of measured values represented by this cumulative frequency value. No concentration is therefore given for this cumulative frequency value.

* Measured values below the analytical quantification limit of the measuring method concerned are adopted in the evaluation with half the analytical quantification limit value.

Appendix 1

Statistic evaluations for industry groups

N-methyl-2-pyrrolidone (vapour), sampling time ≥ 1 h and exposure time ≥ 6 h

Industry groups, general

D.No. = Data set number/ Designation Branch of industry	Number of measured data	Number of firms	Frequency < number of values %	Number of AIIs*	Largest quantification limit in mg/m³	≤ limit value % $	Concentrations in mg/m³		
							50 percen-tile *	90 percen-tile *	95 percen-tile *
D.No. 667 N-methyl-2-pyrrolidone (vapour) Total	510	248	214 42	20	1.4	98.8	+ 0.2	5	12
D.No. 676 N-methyl-2-pyrrolidone (vapour) Chemical industry and Mineral oil processing	41	15	15 36.6	3	0.7	100	+ 0.425	11.23	13.545
D.No. 677 N-methyl-2-pyrrolidone (vapour) Plastics and plastic foam, processing and manufacture; Manufacture and processing of rubber products	101	53	38 37.6	12	0.4	100	+ 0.3	3	4.795
D.No. 678 N-methyl-2-pyrrolidone (vapour) Stones and earths, fine ceramics, glass industry	14	9	6 42.9	3	0.4	100	+ 0.3	0.76	0.89
D.No. 679 N-methyl-2-pyrrolidone (vapour) Manufacture and processing of metals	87	39	36 41.4	7	0.8	97.7	+ 0.4	5.43	13.145
D.No. 680 N-methyl-2-pyrrolidone (vapour) Steel construction, Manufacture of machinery and vehicles	31	18	16 51.6	5	1.4	100	! a. q.	3.54	5.68
D.No. 681 N-methyl-2-pyrrolidone (vapour) Electrical engineering, Fine mechan-ics, Optics	65	31	27 41.5	3	0.4	98.5	+ 0.2	5.5	10.75
D.No. 682 N-methyl-2-pyrrolidone (vapour) Woodworking, paper, printing industry	54	30	32 59.3	5	0.4	98.1	! a. q.	1.76	4.88
D.No. 683 N-methyl-2-pyrrolidone (vapour) Woodworking, paper, printing industry	67	29	24 35.8	4	0.4	100	+ 0.2	3.6	26.25
D.No. 684 N-methyl-2-pyrrolidone (vapour) Building industry	13	7	1 7.7	4	0.05	100	1.5	6.4	7.7
D.No. 782 N-methyl-2-pyrrolidone (vapour) Painting, Car painting	14	7	6 42.9	6	0.4	100	+ 0.2	0.62	2.14

Industry groups: Stationary measurements

D.No. = Data set number/ Designation Branch of industry	Number of measured data	Number of firms	Frequency < number of values %	Number of AIIs*	Largest quantification limit in mg/m³	≤ limit value % $	Concentrations in mg/m³		
							50 percen-tile *	90 percen-tile *	95 percen-tile *
D.No. 685 N-methyl-2-pyrrolidone (vapour) Total	260	151	119 45.8	15	0.8	98.1	+ 0.2	5.5	15
D.No. 686 N-methyl-2-pyrrolidone (vapour) Chemical industry and Mineral oil processing	11	6	5 45.5	3	0.3	100	+ 0.175	13.41	16.93
D.No. 687 N-methyl-2-pyrrolidone (vapour) Plastics and plastic foam, processing and manufacture; Manufacture and processing of rubber products	40	28	13 32.5	10	0.4	100	+ 0.3	3	3.5
D.No. 688 N-methyl-2-pyrrolidone (vapour) Stones and earths, fine ceramics, glass industry	12	8	6 50	2	0.4	100	+ 0.2	0.68	0.74
D.No. 689 N-methyl-2-pyrrolidone (vapour) Manufacture and processing of metals	43	27	19 44.2	6	0.8	95.3	+ 0.2	13.41	24.65
D.No. 690 N-methyl-2-pyrrolidone (vapour) Steel construction, Manufacture of machinery and vehicles	16	9	10 62.5	4	0.4	100	! a.B.	5.02	7.36
D.No. 691 N-methyl-2-pyrrolidone (vapour) Electrical engineering, Fine mechan-ics, Optics	44	22	16 36.4	3	0.4	97.7	+ 0.3	3.54	6.2
D.No. 692 N-methyl-2-pyrrolidone (vapour) Woodworking, paper, printing industry	40	23	26 65	4	0.4	100	! a. q.	1	1.7
D.No. 693 N-methyl-2-pyrrolidone (vapour) Woodworking, paper, printing industry	28	17	10 35.7	3	0.4	100	+ 0.2	6.76	26
D.No. 694 N-methyl-2-pyrrolidone (vapour) Building industry	2	1	1 50	1	0.05	100			
D.No. 783 N-methyl-2-pyrrolidone (vapour) Painting, Car painting	12	6	6 50	5	0.4	100	+ 0.2	0.5	2.5

* AII = social accident insurance institution

Industry groups: Personal measurements

D.No. = Data set number/ Designation Branch of industry	Number of measured data	Number of firms	Frequency < number of values %	Number of AIIs*	Largest quantification limit in mg/m³	≤ limit value % $	Concentrations in mg/m³		
							50 percen-tile *	90 percen-tile *	95 percen-tile *
D.No. 695 N-methyl-2-pyrrolidone (vapour) Total	250	138	95 38	17	1.4	99.6	+ 0.4	4.7	11
D.No. 696 N-methyl-2-pyrrolidone (vapour) Chemical industry and Mineral oil processing	30	11	10 33.3	2	0.7	100	+ 0.45	6	9.75
D.No. 697 N-methyl-2-pyrrolidone (vapour) Plastics and plastic foam, processing and manufacture; Manufacture and processing of rubber products	61	35	25 41	9	0.4	100	+ 0.35	2.93	4.985
D.No. 698 N-methyl-2-pyrrolidone (vapour) Stones and earths, fine ceramics, glass industry	2	1	0	1		100			
D.No. 699 N-methyl-2-pyrrolidone (vapour) Manufacture and processing of metals	44	20	17 38.6	6	0.4	100	0.5	2.72	3
D.No. 700 N-methyl-2-pyrrolidone (vapour) Steel construction, Manufacture of machinery and vehicles	15	12	6 40	5	1.4	100	+ 0.3	1.75	2.725
D.No. 701 N-methyl-2-pyrrolidone (vapour) Electrical engineering, Fine mechan-ics, Optics	21	15	11 52.4	3	0.4	100	! a. q.	9.6	11.9
D.No. 702 N-methyl-2-pyrrolidone (vapour) Woodworking, paper, printing industry	14	9	6 42.9	3	0.4	92.9	+ 0.2	12.56	120.6
D.No. 703 N-methyl-2-pyrrolidone (vapour) Woodworking, paper, printing industry	39	19	14 35.9	4	0.4	100	+ 0.2	3.2	12.8
D.No. 704 N-methyl-2-pyrrolidone (vapour) Building industry	11	7	0	4		100	1.5	6.6	7.9
D.No. 784 N-methyl-2-pyrrolidone (vapour) Painting, Car painting	2	2	0	2		100			

* AII = social accident insurance institution

Industry groups: Measurements with local exhaust ventilation

D.No. = Data set number/ Designation Branch of industry	Number of measured data	Number of firms	Frequency < number of values %	Number of AIIs*	Largest quantification limit in mg/m³	≤ limit value % $	Concentrations in mg/m³		
							50 percen-tile *	90 percen-tile *	95 percen-tile *
D.No. 761 N-methyl-2-pyrrolidone (vapour) Total	310	165	132 42.6	16	1.4	100	+ 0.3	3.7	7
D.No. 762 N-methyl-2-pyrrolidone (vapour) Chemical industry and Mineral oil processing	30	11	10 33.3	2	0.7	100	+ 0.45	12.5	16.8
D.No. 763 N-methyl-2-pyrrolidone (vapour) Plastics and plastic foam, processing and manufacture; Manufacture and processing of rubber products	65	31	24 36.9	9	0.4	100	0.5	3.45	4.775
D.No. 764 N-methyl-2-pyrrolidone (vapour) Stones and earths, fine ceramics, glass industry	12	9	5 41.7	3	0.4	100	+ 0.3	0.78	0.92
D.No. 765 N-methyl-2-pyrrolidone (vapour) Manufacture and processing of metals	55	26	20 36.4	5	0.8	100	+ 0.55	4	6.5
D.No. 766 N-methyl-2-pyrrolidone (vapour) Steel construction, Manufacture of machinery and vehicles	15	10	5 33.3	5	1.4	100	+ 0.55	5.8	7.45
D.No. 767 N-methyl-2-pyrrolidone (vapour) Electrical engineering, Fine mechan-ics, Optics	40	25	20 50	2	0.4	100	+ 0.2	3	3.9
D.No. 768 N-methyl-2-pyrrolidone (vapour) Woodworking, paper, printing industry	33	23	23 69.7	4	0.4	100	! a. q.	1	3.855
D.No. 769 N-methyl-2-pyrrolidone (vapour) Woodworking, paper, printing industry	45	22	16 35.6	4	0.4	100	+ 0.2	2.35	3
D.No. 770 N-methyl-2-pyrrolidone (vapour) Building industry	1	1	0	1		100			
D.No. 786 N-methyl-2-pyrrolidone (vapour) Painting, Car painting	9	5	5 55.6	4	0.4	100			

* AII = social accident insurance institution

Industry groups: Measurements without local exhaust ventilation

D.No. = Data set number/ Designation Branch of industry	Number of measured data	Number of firms	Frequency < number of values %	Number of AIIs*	Largest quantification limit in mg/m³	≤ limit value % $	Concentrations in mg/m³		
							50 percen-tile *	90 percen-tile *	95 percen-tile *
D.No. 771 N-methyl-2-pyrrolidone (vapour) Total	115	66	59 51.3	13	0.8	98.3	! a. q.	6.25	28
D.No. 772 N-methyl-2-pyrrolidone (vapour) Chemical industry and Mineral oil processing	7	5	3 42.9	1	0.3	100			
D.No. 773 N-methyl-2-pyrrolidone (vapour) Plastics and plastic foam, processing and manufacture; Manufacture and processing of rubber products	22	14	8 36.4	7	0.4	100	+ 0.2	1.92	2.9
D.No. 774 N-methyl-2-pyrrolidone (vapour) Stones and earths, fine ceramics, glass industry	2	2	1 50	1	0.4	100			
D.No. 775 N-methyl-2-pyrrolidone (vapour) Manufacture and processing of metals	19	12	9 47.4	4	0.4	89.5	+ 0.2	13.45	86.9
D.No. 776 N-methyl-2-pyrrolidone (vapour) Steel construction, Manufacture of machinery and vehicles	10	5	10 100	2	0.4	100	! a. q.	! a. q.	! a. q.
D.No. 777 N-methyl-2-pyrrolidone (vapour) Electrical engineering, Fine mechan-ics, Optics	3	3	2 66.7	1	0.05	100			
D.No. 778 N-methyl-2-pyrrolidone (vapour) Woodworking, paper, printing industry	12	4	8 66.7	1	0.4	100	! a. q.	1.7	1.74
D.No. 779 N-methyl-2-pyrrolidone (vapour) Woodworking, paper, printing industry	20	9	8 40	2	0.4	100	+ 0.045	28	34
D.No. 780 N-methyl-2-pyrrolidone (vapour) Building industry	4	3	0	2		100			
D.No. 785 N-methyl-2-pyrrolidone (vapour) Codierung 316240-316243 Painting, Car painting	5	2	1 20	2	0.2	100			

* AII = social accident insurance institution

Appendix 2

Statistical evaluations for work area groups

N-methyl-2-pyrrolidone (vapour), sampling time ≥ 1 h and exposure time ≥ 6 h
Work area groups: General

D.No. = Data set number/ Designation Work area	Number of measured data	Number of firms	Frequency < number of values %	Number of AIIs*	Largest quantification limit in mg/m³	≤ limit value % $	Concentrations in mg/m³		
							50 percen-tile *	90 percen-tile *	95 percen-tile *
D.No. 705 N-methyl-2-pyrrolidone (vapour) Storing, Conveying	17	8	10 58.8	6	0.4	100	! a. q.	0.7	0.895
D.No. 706 N-methyl-2-pyrrolidone (vapour) Mixing, Pressing (Compacting)	30	16	15 50	5	0.6	100	+ 0.2	3	4.75
D.No. 707 N-methyl-2-pyrrolidone (vapour) Foaming	17	11	8 47.1	6	0.4	100	+ 0.2	0.72	1.36
D.No. 708 N-methyl-2-pyrrolidone (vapour) Processing, Sanding, Removal	37	14	16 43.2	11	0.4	94.6	+ 0.2	29.6	71.15
D.No. 709 N-methyl-2-pyrrolidone (vapour) Surface coating, painting, coating	151	86	58 38.4	12	0.8	100	+ 0.3	3	5.18
D.No. 710 N-methyl-2-pyrrolidone (vapour) Cleaning	53	26	6 11.3	9	0.4	94.3	1.05	14.25	49.9
D.No. 711 N-methyl-2-pyrrolidone (vapour) Gluing	39	21	17 43.6	9	1.4	100	+ 0.2	2.24	4.935
D.No. 712 N-methyl-2-pyrrolidone (vapour) Foundries	17	6	10 58.8	2	0.2	100	! a. q.	8.6	18.35
D.No. 713 N-methyl-2-pyrrolidone (vapour) Coating in textile finishing	15	7	4 26.7	1	0.4	100	0.55	31	37.25

* AII = social accident insurance institution

Work area groups: Stationary measurements

D.No. = Data set number/ Designation Work area	Number of measured data	Number of firms	Frequency < number of values %	Number of AIIs*	Largest quantification limit in mg/m³	≤ limit value % $	Concentrations in mg/m³		
							50 percen-tile *	90 percen-tile *	95 percen-tile *
D.No. 714 N-methyl-2-pyrrolidone (vapour) Storing, Conveying	13	7	8 61.5	6	0.4	100	! a. q.	0.64	1.155
D.No. 715 N-methyl-2-pyrrolidone (vapour) Mixing, Pressing (Compacting)	9	7	7 77.8	4	0.4	100			
D.No. 716 N-methyl-2-pyrrolidone (vapour) Foaming	6	5	1 16.7	3	0.4	100			
D.No. 717 N-methyl-2-pyrrolidone (vapour) Processing, Sanding, Removal	24	9	13 54.2	7	0.4	91.7	! a. q.	49.8	149.8
D.No. 718 N-methyl-2-pyrrolidone (vapour) Surface coating, painting, coating	82	55	37 45.1	10	0.8	100	+ 0.2	3	5.35
D.No. 719 N-methyl-2-pyrrolidone (vapour) Cleaning	30	15	4 13.3	6	0.4	90	0.7	15	90
D.No. 720 N-methyl-2-pyrrolidone (vapour) Gluing	18	10	7 38.9	7	0.4	100	+ 0.2	3.76	5.52
D.No. 721 N-methyl-2-pyrrolidone (vapour) Foundries	11	5	8 72.7	1	0.2	100	! a. q.	15.8	21.1
D.No. 722 N-methyl-2-pyrrolidone (vapour) Coating in textile finishing	9	5	2 22.2	1	0.4	100			

* AII = social accident insurance institution

Work area groups: Personal measurements

D.No. = Data set number/ Designation Work area	Number of measured data	Number of firms	Frequency < number of values %	Number of AIIs*	Largest quantification limit in mg/m³	≤ limit value % $	Concentrations in mg/m³		
							50 percen-tile *	90 percen-tile *	95 percen-tile *
D.No. 723 N-methyl-2-pyrrolidone (vapour) Storing, Conveying	4	3	2 50	3	0.4	100			
D.No. 724 N-methyl-2-pyrrolidone (vapour) Mixing, Pressing (Compacting)	21	11	8 38.1	4	0.6	100	+ 0.35	3.45	5.875
D.No. 725 N-methyl-2-pyrrolidone (vapour) Foaming	11	6	7 63.6	4	0.4	100	! a. q.	+ 0.38	0.49
D.No. 726 N-methyl-2-pyrrolidone (vapour) Processing, Sanding,	13	8	3 23.1	7	0.1	100	0.5	8.4	13.9
D.No. 727 N-methyl-2-pyrrolidone (vapour) Surface coating, painting, coating	69	39	21 30.4	10	0.4	100	0.65	3	4.865
D.No. 728 N-methyl-2-pyrrolidone (vapour) Cleaning	23	17	2 8.7	7	0.4	100	2	12.35	18.875
D.No. 729 N-methyl-2-pyrrolidone (vapour) Gluing	21	14	10 47.6	8	1.4	100	+ 0.3	1.94	2.095
D.No. 730 N-methyl-2-pyrrolidone (vapour) Foundries	6	2	2 33.3	2	0.05	100			
D.No. 731 N-methyl-2-pyrrolidone (vapour) Coating in textile finishing	6	3	2 33.3	1	0.05	100			

* AII = social accident insurance institution

Work area groups: Measurements without local exhaust ventilation

D.No. = Data set number/ Designation Work area	Number of measured data	Number of firms	Frequency < number of values %	Number of AIIs*	Largest quantification limit in mg/m³	≤ limit value % $	Concentrations in mg/m³		
							50 percen-tile *	90 percen-tile *	95 percen-tile *
D.No. 732 N-methyl-2-pyrrolidone (vapour) Storing, Conveying	4	2	4 100	2	0.4	100			
D.No. 733 N-methyl-2-pyrrolidone (vapour) Mixing, Pressing (Compacting)	4	3	1 25	1	0.05	100			
D.No. 734 N-methyl-2-pyrrolidone (vapour) Foaming	3	3	0	2		100			
D.No. 735 N-methyl-2-pyrrolidone (vapour) Processing, Sanding, Removal	12	5	7 58.3	5	0.1	100	! a. q.	5.72	7.8
D.No. 736 N-methyl-2-pyrrolidone (vapour) Surface coating, painting, coating	17	11	10 58.8	7	0.4	100	! a. q.	3.24	4.055
D.No. 737 N-methyl-2-pyrrolidone (vapour) Cleaning	11	6	1 9.1	4	0.4	81.8	+ 0.4	79.6	102.1
D.No. 738 N-methyl-2-pyrrolidone (vapour) Gluing	11	7	9 81.8	6	0.4	100	! a. q.	+ 0.2	+ 0.245
D.No. 739 N-methyl-2-pyrrolidone (vapour) Foundries	3	2	3 100	1	0.2	100			
D.No. 740 N-Methyl-2-pyrrolidon (vapour) Coating in textile finishing	7	3	1 14.3	1	0.4	100			

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Work area groups: Measurements with local exhaust ventilation

D.No. = Data set number/ Designation Work area	Number of measured data	Number of firms	Frequency < number of values %	Number of AIIs*	Largest quantification limit in mg/m³	≤ limit value % $	Concentrations in mg/m³		
							50 percen-tile *	90 percen-tile *	95 percen-tile *
D.No. 741 N-methyl-2-pyrrolidone (vapour) Storing, Conveying	10	4	5 50	4	0.4	100	+ 0.2	0.7	1.35
D.No. 742 N-methyl-2-pyrrolidone (vapour) Mixing, Pressing (Compacting)	21	9	11 52.4	5	0.6	100	! a. q.	3.45	5.875
D.No. 743 N-methyl-2-pyrrolidone (vapour) Foaming	13	7	8 61.5	4	0.4	100	! a. q.	0.88	1.84
D.No. 744 N-methyl-2-pyrrolidone (vapour) Processing, Sanding, Removal	14	7	8 57.1	7	0.4	100	! a. q.	1	1
D.No. 745 N-methyl-2-pyrrolidone (vapour) Surface coating, painting, coating,	108	68	44 40.7	10	0.8	100	+ 0.3	3.76	5.46
D.No. 746 N-methyl-2-pyrrolidone (vapour) Cleaning	35	19	4 11.4	8	0.4	100	0.9	10.85	13.125
D.No. 747 N-methyl-2-pyrrolidone (vapour) Gluing	24	13	6 25	6	1.4	100	+ 0.45	4.28	6.96
D.No. 748 N-methyl-2-pyrrolidone (vapour) Foundries	10	4	7 70	2	0.1	100	! a. q.	0.6	0.75
D.No. 749 N-methyl-2-pyrrolidone (vapour) Coating in textile finishing	8	4	3 37.5	1	0.05	100			

* AII = social accident insurance institution

Appendix 3

Statistical evaluations for the assignment of work area and industry groups

N-methyl-2-pyrrolidone (vapour), sampling time ≥ 1 h and exposure time ≥ 6 h
Comparison of industry groups with work area groups

D.No. = Data set number/ Designation **In branches of industry**	Focuses of branches of industry	Number of measured data	Number of firms	Frequency < number of values %	Number of AlIs*	≤ limit value % $	Concentrations in mg/m³		
							50 percentile *	90 percentile *	95 percentile *
Work area groups: „Mixing, Pressing“									
D.No. 750 N-methyl-2-pyrrolidone (vapour) Chemical industry	Manufacture/ processing of coating materials, glue, mastics	16	5	7 43.8	1	100	+ 0.4	4.5	6.2
Work area groups: „Foaming“									
D.No. 751 N-methyl-2-pyrrolidone (vapour) Manufacture and processing of plastics and plastic foam and rubber products	Manufacture of plastic and plastic foam and plastics and plastic foam, processing	14	8	7 50	5	100	+ 0.2	0.84	1.72
Work area groups: „Processing, Sanding“									
D.No. 752 N-methyl-2-pyrrolidone (vapour) Processing and treatment of wood	Processing and treatment of wood	12	1	12 100	1	100	! a.B.	! a.B.	! a.B.
Work area groups: „Surface coating, painting, coating"									
D.No. 753 N-methyl-2-pyrrolidone (vapour) Manufacture and processing of plastics and plastic foam and rubber products	Plastics and plastic foam, processing; Manufacture of plastic foils	28	13	11 39.3	9	100	+ 0.3	2	2.6
D.No.754 N-methyl-2-pyrrolidone (vapour) Manufacture and processing of metals	Processing of liquid coating materials (liquid varnish coating)	37	19	10 27	6	100	+0.7	3.86	5.415

D.No. = Data set number/ Designation **In branches of industry**	Focuses of branches of industry	Number of measured data	Number of firms	Frequency < number of values %	Number of AIIs*	≤ limit value % $	Concentrations in mg/m³		
							50 per-centile *	90 per-centile *	95 per-centile *
D.No. 755 N-methyl-2-pyrrolidone (vapour) Steel construction, Manufac-ture of machinery and vehicles	Manufacture of parts for motor vehicles and engines (automotive supply)	16	9	5 31.3	5	100	0.7	5.56	7.36
D.No. 756 N-methyl-2-pyrrolidone (vapour) Electrical engineering, Fine mechanics, Optics	Electrical engineering	21	11	9 42.9	1	100	+ 0.2	1.22	1.965
D.No. 757 N-methyl-2-pyrrolidone (vapour) Woodworking, paper, printing industry	Processing and treatment of wood	22	16	15 68.2	2	100	! a. q.	0.46	0.95
Work area groups: „Cleaning“									
D.No. 758 N-methyl-2-pyrrolidone (vapour) Manufacture and processing of metals	Manufacture and process-ing of metals, general	14	7	1 7.1	4	85.7	1.5	57	96.4
KNr. 759 N-methyl-2-pyrrolidone (vapour) Electrical engineering, Fine mechanics, Optics	Manufacture of fine me-chanics, optics	21	8	3 14.3	2	95.2	0.95	11.9	12
Work area groups: „Gluing“									
D.No. 760 N-methyl-2-pyrrolidone (vapour) Leder-, Textilbekleidungs-gewerbe	Manufacture of shoes	13	5	3 23.1	3	100	+ 0.15	0.405	0.485
D.No. 781 N-methyl-2-pyrrolidone (vapour) Manufacture and processing of plastic and plastic foam and rubber products	Plastics and plastic foam, processing	15	8	4 26.7	4	100	0.85	6.15	8.625

* AII = social accident insurance institution