

# References in the CLH proposal mostly indicate the substance ID as average/mean/median

## *Description of Length of the test material in studies referenced in RAC evaluation of carcinogenicity (1/6)*

Reference	Test material	Shape	Length	type of size distribution parameter (Length)
Kasai et al. (2016)	MWNT-7 (Mitsui)	Fibres	5.2 µm or 5.7 µm  45.1 or 48.7% >5 µm  dispersed fibres collected from inhalation chamber: 5.4-5.9 µm	average  percentage >5 µm  average
Xu et al. (2012)	MWNT-7 (Mitsui)	Fibres low agglomeration	5.11 µm 4.47 µm	mean median
Xu et al. (2012)	MWCNT-N (Nikkiso)	Fibres low agglomeration	3.64 µm 3.02 µm	mean median
Xu et al. (2014)	MWCNT-L (synthesized in lab)	Needles low agglomeration	8 µm	mean

*Description of Length of the test material in studies referenced in RAC evaluation of carcinogenicity (2/6)*

Reference	Test material	Shape	Length	type of size distribution parameter (Length)
Suzui et al. (2016)	MWCNT-N (Nikkiso), unfiltered and flow through fraction	Needle or fibre-like appearance	Unfiltered material: $4.2 \pm 2.9 \mu\text{m}$ flow through material: $2.6 \pm 1.6 \mu\text{m}$	mean
Murphy et al. (2011)	NTlong2 (Univ. Manchester)	Long straight fibres low agglomeration	85% >15 $\mu\text{m}$	percentage >15 $\mu\text{m}$
Sargent et al. (2014) [Porter et al., 2013]	MWCNT-7 (Hodogaya)	Single fibre-like nanotubes to tangled agglomerates	several $\mu\text{m}$	no further information on length

*Description of Length of the test material in studies referenced in RAC evaluation of carcinogenicity (3/6)*

Reference	Test material	Shape	Length	type of size distribution parameter (Length)
Nagai et al. (2011)	NT50a (=MWNT-7 (Mitsui), highly aggregated)  NT-50a(-agg) = subfraction of non-aggregated NT50a fibres	Needles of high crystallinity material was agglomerated, the subfraction was not	5.29 µm	type not given
Nagai et al (2011)	NT145 (Showa Denko)	Rods low agglomeration	4.34 µm	type not given

*Description of Length of the test material in studies referenced in RAC evaluation of carcinogenicity (4/6)*

Reference	Test material	Shape	Length	type of size distribution parameter (Length)
Nagai et al (2011)	NT50b (Showa Denko), highly aggregated	Fibre of high crystallinity agglomerated	4.6 µm	type not given
Rittinghausen et al. (2014)	MWCNT A (synthesized)	Straight fibre low agglomeration	8.57 µm (WHO fibres) 2.72 µm (all fibres) ~3.1% >20 µm	type not given percentage >20 µm
Rittinghausen et al. (2014)	MWCNT B (synthesized)	Straight fibre low agglomeration	9.3 µm (WHO fibres) 2.13 µm (all fibres) ~9.4% >20 µm	type not given percentage >20 µm
Rittinghausen et al. (2014)	MWCNT C (synthesized)	Straight fibre low agglomeration	10.24 µm (WHO fibres) 4.18 µm (all fibres) ~11.8% >20 µm	type not given percentage >20 µm

*Description of Length of the test material in studies referenced in RAC evaluation of carcinogenicity (5/6)*

Reference	Test material	Shape	Length	type of size distribution parameter (Length)
Rittinghausen et al. (2014)	MWCNT D (synthesized)	Straight fibre low agglomeration	7.91 µm (WHO fibres) 2.53 µm (all fibres)  ~2.1% >20 µm	type not given  percentage >20 µm
Huaux et al. (2016)	MWCNT-7 (Mitsui)	Fibres (modified by annealing)	7.1 µm (median) 75% >5 µm	median percentage >5 µm
Huaux et al. (2016)	Short MWCNT-7 (subset of MWCNT-7 after grinding)	Ground Fibres (modified by annealing)	2.8 µm (median) 14% >5 µm	median percentage >5 µm
Takagi et al. (2008)	MWCNT-7 (Mitsui)	Rod/Fibre agglomerates among individual nanotubes)	27.5% >5 µm 100% <20 µm	percentage >5 µm percentage <20 µm

*Description of Length of the test material in studies referenced in RAC evaluation of carcinogenicity (6/6)*

Reference	Test material	Shape	Length	type of size distribution parameter (Length)
Takagi et al. (2012)	MWCNT-7 (Mitsui)	Rod/Fibre agglomerates among individual nanotubes)	27.5% >5 µm 100% <20 µm	percentage >5 µm percentage <20 µm
Sakamoto et al. (2009)	MWCNT-7 (Mitsui)	Rod/Fibre agglomerates among individual nanotubes)	72.5% in range 1-4 µm	percentage in range 1-4 µm