

Table 1 General appearance in F0 and F1 parental male rats treated with N,N-Dicyclohexyl-2-benzothiazolesulfenamide (DCBS) in the two-generation reproductive toxicity study (SR05241)

Generation	Item	Pre-mating period						Breeding period						
		Control			DCBS (ppm)			Control			DCBS (ppm)			
		24	24	24	24	24	24	24	24	24	24	24	24	24
F0	Number of animals examined	24	24	24	24	24	24	24	24	24	24	24	24	24
	Number of animals with abnormal findings	0	0	0	0	0	0	0	0	0	0	1	1	0
	Findings ^a													
	Deformation of the face	0	0	0	0	0	0	0	0	0	0	1	0	0
	Malocclusion	0	0	0	0	0	0	0	0	0	0	1	1	0
	Salivation	0	0	0	0	0	0	0	0	0	0	1	0	0
	Soil of periorcular fur/perinasal fur	0	0	0	0	0	0	0	0	0	0	1	1	0
	Abdominal distention	0	0	0	0	0	0	0	0	0	0	1	0	0
F1	Number of animals examined	24	24	24	24	24	24	24	24	24	24	24	24	24
	Number of animals with abnormal findings	0	0	0	0	0	0	0	0	0	0	0	0	1
	Findings ^a													
	Malocclusion	0	0	0	0	0	0	0	0	0	0	0	0	1
	Soil of periorcular fur/perinasal fur	0	0	0	0	0	0	0	0	0	0	0	0	1

a. Values represent the number of animals that showed abnormal findings during each period.

Table 2 General appearance in F0 and F1 parental female rats treated with N,N-Dicyclohexyl-2-benzothiazolesulfenamide (DCBS) in the two-generation reproductive toxicity study (SR05241)

Genet- ation	Item	Pre-mating period						Breeding period											
		DCBS (ppm)			DCBS (ppm)			DCBS (ppm)			DCBS (ppm)								
		Control	80	600	4500	Control	80	24	24	24	24	24	24	24	24	24	24	24	24
F0	Number of animals examined ^d	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
	Number of animals with abnormal findings ^a	0	0	0	0	0	0	0	0	0	1	2	5	0*	1	1	1	1	1
	Findings ^{a,d}																		
	Malocclusion	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
	Crushing of incisors	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
	Soil of periorcular fur/perinasal fur	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0
	Subcutaneous mass	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
	Alopecia	0	0	0	0	0	0	0	0	1	2	0	0	0	0	1	1	1	1
F1	Number of animals examined ^d	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
	Number of animals with abnormal findings ^a	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	3
	Findings ^{a,d}																		
	Malocclusion	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3
	Soil of periorcular fur/perinasal fur	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	Soil of perigenital fur	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	Found dead	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0

Statistical analyses were made based on the total number of animals examined.

a: Including the mating period and delivery.

b: Including the period from weaning to autopsy.

c: Values in parentheses represent the number of animals that were non-pregnant and that did not produce viable pups.

d: Values represent the number of animals that showed abnormal findings during each period.

*: Significantly different from the control at $p \leq 0.05$ by Fisher's exact probability test.

Table 3 Body weights of F0 and F1 parental male rats treated with N,N-Dicyclohexyl-2-benzothiazolesulfenamide (DCBS) in the two-generation reproductive toxicity study (SR05241)

Generation	Group	Number of animals	Breeding period														Autopsy day		
			Pre-mating period							In treatment week									
			0	1	2	3	4	5	6	7	8	9	10	11	12	13		14	
F0	Control	24	Mean	155.6	227.5	293.5	351.3	395.7	433.9	466.4	494.6	518.4	538.9	556.9	566.4	583.0	598.4	611.1	624.4
			S.D.	4.7	8.4	15.5	22.9	28.7	33.9	40.1	45.3	49.6	54.4	59.1	60.0	64.1	67.6	70.3	76.0
F0	DCBS 80 ppm	24	Mean	155.9	224.8	287.7	343.3	384.3	418.3	450.6	478.4	500.2	521.0	539.2	550.1	567.0	584.0	598.4	612.5
			S.D.	4.6	7.5	12.1	20.3	24.9	30.7	35.6	41.4	44.3	47.0	48.8	49.7	53.7	56.5	59.0	61.0
F0	DCBS 600 ppm	24	Mean	155.6	225.9	288.7	345.2	388.6	424.6	456.8	481.5	502.5	521.0	538.8	548.3	564.6	579.5	592.0	603.4
			S.D.	4.6	9.0	14.2	20.0	25.2	29.4	35.3	39.0	42.1	42.8	46.1	44.9	45.9	46.6	48.3	51.2
F0	DCBS 4500 ppm	24	Mean	155.7	215.4**	274.4**	327.9**	368.8**	403.3**	434.0**	457.0**	477.2**	496.2**	512.6**	522.5**	537.8**	550.8**	564.5*	575.4 [§]
			S.D.	4.5	6.2	10.5	16.0	21.0	25.5	27.3	28.5	30.9	32.4	36.0	35.8	38.0	37.8	41.1	42.3
F1	Control	24	Mean	71.8	124.0	189.8	253.8	320.2	379.4	426.4	463.9	498.2	528.8	553.3	565.1	583.2	601.4	615.3	630.7
			S.D.	6.4	10.6	13.7	15.1	18.6	23.5	30.5	37.2	44.3	49.2	54.0	55.9	62.4	67.5	68.0	74.7
F1	DCBS 80 ppm	24	Mean	71.6	123.6	187.0	251.9	315.1	371.2	416.8	451.4	482.5	509.3	533.3	542.4	559.0	575.8	589.8	605.1
			S.D.	6.4	9.7	13.6	17.0	20.7	23.3	27.8	29.7	32.7	36.4	39.8	38.8	42.2	43.8	44.5	47.7
F1	DCBS 600 ppm	24	Mean	71.8	125.6	191.8	253.3	316.5	372.4	416.0	451.5	485.1	515.7	540.3	552.3	570.0	586.9	598.9	614.2
			S.D.	7.7	12.4	15.2	17.7	20.9	23.5	26.7	32.5	37.4	40.9	44.3	45.3	48.8	49.3	52.7	52.5
F1	DCBS 4500 ppm	24	Mean	67.2	119.6	183.8	246.7	311.0	368.6	416.7	453.2	487.7	515.1	540.9	552.0	572.6	590.5	604.3	622.6
			S.D.	7.9	12.9	18.6	22.9	27.3	29.4	31.3	35.5	37.3	40.8	41.9	45.7	48.1	49.7	50.8	51.8

Values in parentheses are the number of animals examined.

*: Significantly different from the control at $p \leq 0.05$ by Dunnett's test.

** : Significantly different from the control at $p \leq 0.01$ by Dunnett's test.

§ : Significantly different from the control at $p \leq 0.05$ by Mann-Whitney U-test.

** : Significantly different from the control at $p \leq 0.01$ by Mann-Whitney U-test.

Table 4 Body weights of F0 and F1 parental female rats treated with N,N-Dicyclohexyl-2-benzothiazolesulfenamide (DCBS) in the two-generational reproductive toxicity study (SR05241)

Generation	Group	Number of animals	Breeding period																					Autopsy day		
			Pre-mating period							Gestation day							Lactation day									
			Treatment week							Gestation day							Lactation day									
0	1	2	3	4	5	6	7	8	9	10	0	7	14	20	27	34	41	48	55	62	70					
F0	Control	24	121.1	154.5	172.1	194.5	211.8	226.8	239.7	253.5	261.9	266.1	272.2	272.0	307.7	342.9	414.0	325.0	334.1	333.7	338.0	338.0	315.4	305.9		
			S.D.	4.0	8.3	12.8	15.9	19.9	22.7	25.0	26.9	27.8	29.1	30.6	28.8	33.4	33.6	37.2	34.0	34.0	34.0	33.5	32.0	28.5		
		24	121.3	157.3	180.1	202.5	221.7	237.7	252.0	265.4	274.4	279.8	285.8	287.8	324.1	355.2	420.8	329.9	340.7	343.3	348.5	348.5	323.5	311.6		
		S.D.	3.9	8.1	12.7	15.9	17.3	20.2	23.0	23.2	23.1	22.8	25.6	23.4	25.8	27.3	29.4	24.4	20.1	20.0	19.0	17.1	17.1			
F0	DCBS 80 ppm	24	121.0	155.6	178.1	199.7	218.2	235.5	250.8	263.5	271.5	276.3	284.5	286.5	326.8 [*]	360.2	429.4	334.1	343.2	345.1	349.9	349.9	322.5	313.7		
			S.D.	3.8	7.5	11.5	15.0	16.4	17.3	18.9	21.3	20.7	21.5	23.2	22.3	21.3	23.7	25.4	19.1	21.9	21.5	18.2	17.6	17.8		
		24	121.0	147.6**	166.5	185.9	204.5	219.2	232.4	244.4	249.8	256.6	262.4	262.4	293.3 [*]	321.9 * 389.4 * 298.4 ^{**}	310.6 ^{**}	316.3 ^{**}	303.6 ^{**}	310.6 ^{**}	316.3 ^{**}	301.3 [*]	288.5 [*]	288.5 [*]		
		S.D.	3.9	6.5	9.1	11.8	12.8	16.9	16.2	17.1	17.8	18.9	17.9	17.7	18.7	18.6	21.5	19.4	15.7	15.3	14.9	13.9	16.2			
F1	Control	24	67.7	109.9	150.2	179.3	207.2	231.7	252.1	264.9	282.5	291.8	301.3	302.3	336.9	374.0	439.9	339.3	339.3	358.3	363.0	339.3	331.9			
			S.D.	6.1	9.6	13.2	14.5	18.4	22.6	25.8	29.2	30.3	34.0	36.2	33.7	36.8	41.9	51.4	42.4	37.0	35.2	36.0	33.2	32.5		
		24	67.7	109.4	151.2	183.7	210.8	234.1	255.3	269.5	285.3	292.8	301.7	304.9	339.5	374.6	439.9	339.8	361.4	359.7	365.1	344.8	331.2			
		S.D.	6.1	8.0	9.9	13.4	18.3	21.9	26.1	27.7	29.4	33.0	34.2	34.0	37.5	40.3	45.8	43.9	40.9	38.1	27.3	26.3	28.5			
F1	DCBS 80 ppm	24	67.7	109.4	151.2	183.7	210.8	234.1	255.3	269.5	285.3	292.8	301.7	304.9	339.5	374.6	439.9	339.8	361.4	359.7	365.1	344.8	331.2			
			S.D.	6.1	8.0	9.9	13.4	18.3	21.9	26.1	27.7	29.4	33.0	34.2	34.0	37.5	40.3	45.8	43.9	40.9	38.1	27.3	26.3	28.5		
		24	67.7	109.0	150.6	182.2	207.3	232.1	252.7	269.6	283.6	294.2	304.7	304.0	339.1	371.8	434.6	352.8	355.9	351.8	359.9	335.9	331.3			
		S.D.	7.2	10.5	11.8	13.0	15.9	20.2	21.1	22.7	24.2	26.5	26.2	24.8	26.9	25.5	32.5	27.7	22.3	22.7	24.1	23.9	23.1			
F1	DCBS 600 ppm	24	64.3	108.7	151.5	179.5	206.5	230.6	251.6	268.1	281.3	291.4	301.7	302.3	340.3	372.3	441.0	352.6	351.3	346.2	349.0	333.9	330.2			
			S.D.	7.5	9.2	10.5	12.1	13.6	16.0	20.4	21.8	22.6	25.3	27.8	27.1	28.5	32.0	36.1	36.2	34.7	34.8	37.0	33.1	30.8		
		24	64.3	108.7	151.5	179.5	206.5	230.6	251.6	268.1	281.3	291.4	301.7	302.3	340.3	372.3	441.0	352.6	351.3	346.2	349.0	333.9	330.2			
		S.D.	7.5	9.2	10.5	12.1	13.6	16.0	20.4	21.8	22.6	25.3	27.8	27.1	28.5	32.0	36.1	36.2	34.7	34.8	37.0	33.1	30.8			

Values in parentheses are the number of animals examined.

*: Significantly different from the control at $p \leq 0.05$ by Dunnett's test.

***: Significantly different from the control at $p \leq 0.01$ by Dunnett's test.

†: Significantly different from the control at $p \leq 0.05$ by Mann-Whitney U-test.

††: Significantly different from the control at $p \leq 0.01$ by Mann-Whitney U-test.

Table 5 Body weight gains of F0 and F1 parental male rats treated with N,N-Dicyclohexyl-2-benzothiazolesulfenamide (DCBS) in the two-generation reproductive toxicity study (SR05241)

Generation	Group	Number of animals	Pre-mating period																Breeding period			
			Body weight gain (g) in treatment weeks																0-Antopsy day			
			0-1	0-2	0-3	0-4	0-5	0-6	0-7	0-8	0-9	0-10	0-11	0-12	0-13	0-14	0-14 day					
F0	Control	Mean	71.9	137.8	195.6	240.0	278.3	310.8	339.0	362.8	383.3	401.3	410.8	427.4	442.8	455.5	468.8					
		S.D.	6.0	13.4	21.1	26.9	32.2	38.4	43.6	48.0	52.7	57.4	58.2	62.3	65.8	68.4	74.1					
	DCBS 80 ppm	Mean	69.0	131.8	187.4	228.5	262.4	294.8	322.5	344.3	365.1	383.3	394.0	411.0	428.0	442.4	456.4	(23)	(23)	(23)	(23)	
		S.D.	4.2	9.3	17.9	22.8	28.7	33.7	39.5	42.4	44.9	46.7	47.5	51.4	54.4	57.0	59.0					
DCBS 600 ppm	Mean	70.3	133.1	189.6	233.0	269.0	301.2	326.0	347.0	365.5	383.3	392.7	409.0	424.0	436.4	447.8						
	S.D.	5.7	11.3	17.9	23.0	27.2	33.0	36.7	39.7	40.4	43.7	42.5	43.4	44.0	45.8	48.8						
DCBS 4500 ppm	Mean	59.7 ^{**}	118.7 ^{**}	172.2 ^{**}	213.1 ^{**}	247.5 ^{**}	278.3 ^{**}	301.3 ^{**}	321.5 ^{**}	340.5 ^{**}	356.9 ^{**}	366.8 ^{**}	382.0 ^{**}	395.1 ^{**}	408.8 ^{**}	419.7 [‡]						
	S.D.	3.8	7.7	13.1	18.7	23.2	25.4	26.8	29.0	30.5	34.0	33.9	35.9	35.9	39.3	40.4						
F1	Control	Mean	52.3	118.0	182.0	248.4	307.7	354.7	392.2	426.4	457.1	481.6	493.3	511.4	529.7	543.6	558.9					
		S.D.	5.7	9.6	12.2	17.0	23.6	30.9	38.1	45.3	50.2	55.2	57.0	63.6	68.6	69.1	75.9					
	DCBS 80 ppm	Mean	52.0	115.4	180.3	243.5	299.6	345.3	379.8	411.0	437.8	461.8	470.8	487.4	504.3	518.2	533.5					
		S.D.	4.5	9.0	13.3	18.0	21.6	27.1	29.1	32.1	36.2	39.3	38.8	42.6	43.9	44.4	48.1					
DCBS 600 ppm	Mean	53.8	120.0	181.5	244.7	300.6	344.3	379.7	413.3	443.9	468.5	480.5	498.2	515.1	527.1	542.4						
	S.D.	5.3	9.3	13.4	17.3	21.5	25.5	31.2	36.1	39.9	43.3	44.4	48.3	48.6	52.2	52.3						
DCBS 4500 ppm	Mean	52.5	116.6	179.5	243.8	301.5	349.5	386.0	420.5	447.9	473.7	484.8	505.4	523.3	537.2	555.4						
	S.D.	5.8	12.1	16.5	21.2	23.7	25.9	30.4	32.7	36.3	37.8	41.5	43.7	45.5	46.7	48.2						

Values in parentheses are the number of animals examined.

** : Significantly different from the control at $p \leq 0.01$ by Dunnett's test.

‡ : Significantly different from the control at $p \leq 0.05$ by Mann-Whitney U-test.

ss : Significantly different from the control at $p \leq 0.01$ by Mann-Whitney U-test.

Table 6 Body weight gains of F0 and F1 parental female rats treated with N,N-Dicyclohexyl-2-benzothiazolesulfenamide (DCBS) in the two-generation reproductive toxicity study (SR05241)

Generation	Group	Number of animals	Breeding period																	
			Prc-mating period								Body weight gain (g)									
			Treatment weeks				Gestation days				Lactation days				0-Autopsy day					
0-1	0-2	0-3	0-4	0-5	0-6	0-7	0-8	0-9	0-10	0-7	0-14	0-20	0-4	0-7	0-14	0-21				
F0	Control	Mean	33.5	51.0	73.4	90.7	105.8	118.6	132.5	140.8	145.0	151.1	(22)	(22)	(22)	(22)	(22)	(22)	(22)	(22)
		S.D.	6.4	11.0	13.9	17.8	20.7	22.7	24.6	25.7	26.9	28.4	7.7	11.2	19.3	10.6	17.8	17.7	15.9	26.4
	DCBS 80 ppm	Mean	36.0	58.9 *	81.3	100.5	116.4	130.7	144.1	153.1	158.5	164.6	36.3	67.4	133.0	10.8	13.4	18.5	-6.4	190.3
		S.D.	6.0	10.7	13.8	15.5	18.5	21.3	21.5	21.6	21.3	24.0	6.1	9.1	11.4	8.8	11.0	13.2	12.6	15.5
DCBS 600 ppm	Mean	34.6	57.0	78.7	97.1	114.4	129.8	142.5	150.5	155.2	163.5	40.4 *	73.7	143.0	9.1	11.0	15.8	-11.5	192.7	
	S.D.	5.9	10.3	13.7	15.6	16.6	18.4	20.7	20.2	21.0	22.9	5.4	9.6	12.7	10.7	9.2	9.4	10.5	17.0	
DCBS 4500 ppm	Mean	26.6 **	45.5	64.9	83.5	98.2	111.4	123.4	128.8	135.6	141.4	30.9 *	61.5 **	127.0 **	5.2	12.2	17.9	2.8 *	167.5 †	
	S.D.	5.6	8.1	10.4	11.8	15.9	15.2	15.5	16.5	17.8	16.9	5.1	6.2	12.3	10.2	13.7	14.3	18.0	14.5	
F1	Control	Mean	42.3	82.5	111.6	139.5	164.0	184.5	197.3	214.8	224.2	233.6	(23)	(23)	(23)	(23)	(22)	(22)	(22)	(22)
		S.D.	4.2	9.4	11.8	15.6	19.8	23.5	26.9	27.8	31.6	34.1	7.6	12.3	26.8	9.8	15.0	17.9	21.1	30.3
	DCBS 80 ppm	Mean	41.7	83.5	116.0	143.1	166.4	187.5	201.8	217.6	225.0	234.0	(22)	(22)	(22)	(22)	(22)	(22)	(22)	(22)
		S.D.	3.3	6.7	12.0	16.5	20.4	24.5	26.1	28.4	32.0	33.2	6.2	11.0	20.1	11.8	13.4	22.7	28.5	27.3
DCBS 600 ppm	Mean	41.3	82.9	114.5	139.5	164.4	185.0	201.9	215.9	226.5	237.0	(22)	(22)	(22)	(21)	(21)	(21)	(21)	(21)	
	S.D.	5.7	8.2	10.9	13.3	17.7	18.8	21.2	22.7	25.0	24.9	6.4	9.9	21.9	11.3	12.6	19.0	16.7	20.9	
DCBS 4500 ppm	Mean	44.4	87.3	115.3	142.3	166.3	187.3	203.8	217.0	227.1	237.4	38.0	70.1	138.7	-1.3	-6.3	-3.6	-18.6	265.5	
	S.D.	4.1	7.9	12.4	12.9	16.2	20.8	21.9	23.2	26.4	29.0	9.0	11.5	17.7	11.9	17.2	27.0	32.1	31.1	

Values in parentheses are the number of animals examined.

*: Significantly different from the control at $p \leq 0.05$ by Dunnett's test.

** : Significantly different from the control at $p \leq 0.01$ by Dunnett's test.

†: Significantly different from the control at $p \leq 0.05$ by Mann-Whitney U-test.

** : Significantly different from the control at $p \leq 0.01$ by Mann-Whitney U-test.

Table 7 Food consumption of F0 and F1 parental male rats treated with N,N-Dicyclohexyl-2-benzothiazolesulfenamide (DCBS) in the two-generation reproductive toxicity study (SR05241)

Generation	Group	Number of animals	Food consumption (g/day) in treatment week													
			Pre-mating period							Breeding period						
			1	2	3	4	5	6	7	8	9	10	11	12	13	14
F0	Control	Mean	22.9	27.2	28.4	29.0	29.2	29.6	29.4	29.7	29.6	29.3	28.5	29.2	29.3	
		S.D.	1.1	1.9	2.5	2.7	2.7	2.7	2.6	2.8	3.0	2.9	2.7	2.8	2.8	
	DCBS 80 ppm	Mean	22.5	26.6	27.5	27.9	28.1	28.8	28.7	28.7	29.1	29.1	28.3	28.6	28.6	
		S.D.	0.9	1.6	2.4	2.4	2.5	2.8	2.9	2.6	2.8	2.5	2.7	3.0	2.9	
DCBS 600 ppm	Mean	22.6	26.5	28.0	28.3	28.6	28.7	28.4	28.1	28.5	28.5	27.9	27.7	28.0		
	S.D.	1.3	1.7	2.1	2.3	2.3	2.4	2.3	2.5	2.4	2.5	2.2	2.0	2.2		
DCBS 4500 ppm	Mean	21.2**	24.3**	25.8**	26.5**	26.8**	27.5*	27.4*	27.3**	27.7	27.7	27.1	26.9**	27.1**		
	S.D.	0.9	1.6	1.9	1.9	2.0	1.8	1.8	2.1	2.3	2.1	2.0	1.9	2.2		
F1	Control	Mean	14.2	20.9	25.2	28.9	30.6	31.4	31.3	31.1	31.0	30.4	29.7	29.7	29.8	
		S.D.	1.3	1.8	2.0	2.0	2.3	3.0	3.1	3.0	2.7	2.8	2.8	2.8	2.8	
	DCBS 80 ppm	Mean	14.7	20.8	24.8	27.4*	29.0*	29.6*	29.6*	29.6*	29.8	30.0	28.9	28.2	28.6	
		S.D.	1.1	1.6	1.7	1.9	1.9	2.2	2.0	1.8	1.9	2.1	2.3	2.3	1.8	
DCBS 600 ppm	Mean	14.8	21.4	25.0	27.5	29.2	29.3**	29.8	30.0	29.9	29.9	29.0	29.2	28.8		
	S.D.	1.3	1.3	1.2	1.6	1.9	1.9	2.2	2.2	2.1	2.0	2.1	1.9	2.3		
DCBS 4500 ppm	Mean	14.2	20.5	24.6	27.1*	29.1	29.8	29.8	30.0	29.8	29.9	29.8	28.8	29.4		
	S.D.	1.4	2.2	2.4	2.7	2.5	2.0	2.2	2.4	2.3	2.3	3.3	2.9	2.8		

Values in parentheses are the number of animals examined.

*: Significantly different from the control at $p \leq 0.05$ by Dunnett's test.

***: Significantly different from the control at $p \leq 0.01$ by Dunnett's test.

Table 8 Food consumption of F0 and F1 parental female rats treated with N,N-Dicyclohexyl-2-benzothiazolesulfenamide (DCBS) in the two-generation reproductive toxicity study (SR05241)

Generation	Group	Number of animals	Pre-mating period										Breeding period									
			Food consumption (g/day)										Gestation days					Lactation days				
			Treatment week										0-7	7-14	14-20	0-7	7-14	14-21				
			1	2	3	4	5	6	7	8	9	10	0-7	7-14	14-20	0-7	7-14	14-21				
F0	Control	Mean	16.3	16.9	17.7	18.0	18.2	18.7	18.8	18.5	18.0	17.8	17.8	21.8	23.8	23.7	34.3	51.1	67.5			
		S.D.	1.0	1.5	1.6	1.7	1.9	1.9	2.0	2.0	2.0	1.7	1.9	2.4	2.5	2.0	4.8	7.2	8.1			
	DCBS 80 ppm	Mean	16.4	17.8	18.2	18.6	18.6	19.3	19.5	18.8	18.5	18.2	18.2	21.5	23.4	22.8	34.2	50.3	65.9			
		S.D.	1.0	1.5	1.7	1.6	2.0	1.8	1.6	1.6	1.5	1.7	1.7	2.1	2.0	2.0	3.3	4.1	4.4			
	DCBS 600 ppm	Mean	16.2	17.6	17.8	18.5	18.7	19.3	19.2	18.9	18.8	18.7	18.7	22.7	24.8	23.7	33.9	50.2	65.0			
		S.D.	0.9	1.2	1.3	1.5	1.7	1.6	1.8	1.7	1.9	1.8	1.9	1.9	2.7	2.0	4.5	5.1	5.5			
	DCBS 4500 ppm	Mean	15.1**	16.2	16.6	17.6	17.9	18.1	18.3	17.9	17.7	17.9	20.5	22.7	23.0	31.7	47.9	63.1 [‡]				
		S.D.	1.0	1.6	1.5	1.4	1.6	1.5	1.7	1.5	1.6	1.5	1.9	1.8	1.5	3.7	3.8	5.4				
F1	Control	Mean	13.0	17.5	18.9	20.1	20.8	20.9	21.3	21.1	20.4	20.7	20.7	23.5	26.7	24.7	30.4	48.2	62.6			
		S.D.	1.1	1.6	1.7	1.8	2.3	2.3	2.3	2.8	2.3	2.6	2.3	2.2	3.3	3.6	4.3	5.5	6.7			
	DCBS 80 ppm	Mean	13.5	17.5	19.0	19.9	20.6	21.2	21.0	20.9	20.3	20.7	20.7	23.4	25.6	24.7	30.1	47.9	59.9			
		S.D.	0.9	1.4	1.6	1.7	1.9	2.3	2.1	2.2	2.1	1.9	1.9	2.4	3.1	3.0	5.5	8.2	9.4			
	DCBS 600 ppm	Mean	13.2	17.6	18.9	19.4	20.5	20.6	20.8	21.1	20.4	21.0	21.0	23.4	25.3	24.2	28.7	46.2	59.7			
		S.D.	1.2	1.5	1.7	1.9	2.1	2.2	2.3	2.1	1.7	1.9	1.9	2.3	1.9	1.9	5.4	8.4	10.0			
	DCBS 4500 ppm	Mean	13.0	17.7	19.1	19.8	20.7	21.1	21.0	21.0	20.7	21.1	21.1	23.8	25.6	25.5	26.8	43.7	58.9			
		S.D.	1.2	1.4	1.5	1.8	1.7	2.1	1.9	1.9	1.9	1.8	2.0	2.5	3.3	2.6	5.2	6.4	8.7			

Values in parentheses are the number of animals examined.

** : Significantly different from the control at $p \leq 0.01$ by Dunnett's test.

‡ : Significantly different from the control at $p \leq 0.05$ by Mann-Whitney U-test.

Table 9 Test substance intake of F0 and F1 parental male rats treated with N,N-Dicyclohexyl-2-benzothiazolesulfenamide (DCBS) in the two-generation reproductive toxicity study (SR05241)

Generation Group	Number of animals	Pre-mating period														Breeding period				All the periods	
		Test substance intake (mg/kg/day) in treatment week														12	13	14	Min	Max	Mean
		1	2	3	4	5	6	7	8	9	10										
F0 DCBS 80 ppm	24	8.0	7.4	6.4	5.8	5.4	5.1	4.8	4.6	4.5	4.3	4.0	3.9	3.8	3.8	3.8	3.8	3.8	8.0	5.2	
DCBS 600 ppm	24	60	55	49	44	40	38	35	34	33	32	30	29	28	28	28	28	28	60	39	
DCBS 4500 ppm	24	443	399	354	323	299	285	270	257	251	243	227	220	216	216	216	216	216	443	291	
F1 DCBS 80 ppm	24	9.5	8.9	7.9	7.0	6.3	5.7	5.2	4.9	4.7	4.5	4.1	3.9	3.9	3.9	3.9	3.9	3.9	9.5	5.9	
DCBS 600 ppm	24	71	67	59	52	47	42	40	37	35	33	31	30	29	29	29	29	29	71	44	
DCBS 4500 ppm	24	534	502	449	392	355	322	296	277	260	249	234	219	219	219	219	219	219	534	331	

Table 10 Test substance intake of F0 and F1 parental female rats treated with N,N-Dicyclohexyl-2-benzothiazolesulfenamide (DCBS) in the two-generation reproductive toxicity study (SR05241)

Generation Group	Number of animals	Pre-mating period										Breeding period										All the periods		
		Test substance intake (mg/kg/day)										Gestation days					Lactation days					Min	Max	Mean
		1	2	3	4	5	6	7	8	9	10	0-7	7-14	14-20	0-7	7-14	14-21							
F0 DCBS 80 ppm	24	8.3	7.9	7.2	6.7	6.3	6.1	5.9	5.5	5.3	5.1	5.3	5.3	4.3	4.3	8.0	11.5	16.3	4.3	16.3	7.2			
DCBS 600 ppm	24	62	59	53	51	48	46	44	42	41	39	42	41	33	59	86	121	33	121	54				
DCBS 4500 ppm	24	460	438	402	387	367	350	337	322	310	307	315	315	266	459	681	942	266	942	416				
F1 DCBS 80 ppm	24	9.9	9.3	8.3	7.6	7.0	6.6	6.2	5.9	5.5	5.5	5.5	5.5	4.5	6.7	10.5	14.3	4.5	14.3	7.4				
DCBS 600 ppm	24	73	70	62	56	53	49	46	45	42	41	41	41	33	49	77	107	33	107	55				
DCBS 4500 ppm	24	538	526	479	431	404	377	352	336	320	315	315	309	260	348	563	794	260	794	417				

Test substance intake of females during the lactation period was expressed as the total amounts of the test substance by maternal animals and their offspring.

Table 11 Vaginal estrous cycles in F0 and F1 parental female rats treated with N,N-Dicyclohexyl-2-benzothiazolesulfenamide (DCBS) in the two-generation reproductive toxicity study (SR05241)

Generation	Group	Number of animals	Estrous cyclicity		
			Normality Incidence (%) ^a	Mean	Length (days)
F0	Control	24	24/24 (100)	Mean 4.05 S.D. 0.16	
	DCBS 80 ppm	24	24/24 (100)	Mean 4.01 S.D. 0.06	
	DCBS 600 ppm	24	24/24 (100)	Mean 4.04 S.D. 0.15	
	DCBS 4500 ppm	24	24/24 (100)	Mean 4.01 S.D. 0.06	
F1	Control	24	23/24 (95.8)	Mean 4.21 S.D. 0.34	
	DCBS 80 ppm	24	24/24 (100)	Mean 4.05 S.D. 0.21	
	DCBS 600 ppm	24	23/24 (95.8)	Mean 4.25 S.D. 1.08	
	DCBS 4500 ppm	24	24/24 (100)	Mean 4.07 S.D. 0.24	

a: Incidence of females with the normal estrous cycle (%) = (number of females cycling normally/number of females examined) x 100.
The normal estrous cycle is defined as having a mean cycle length between 4.0 and 6.0 days.

Table 12 Reproductive findings in F0 and F1 parental rats treated with N,N-Dicyclohexyl-2-benzothiazolesulfenamide (DCBS) in the two-generation reproductive toxicity study (SR05241)

Generation	Group	Copulation index		Fertility index		Gestation index (Incidence, %)	Pre-coital interval (days)	Gestation length (days)	Number of implantations	Delivery index (%) ^a	Number of pups delivered	Sex ratio	Viability index (%) ^b on postnatal day		
		Male (Incidence, %)	Female (Incidence, %)	Male (Incidence, %)	Female (Incidence, %)								0	4	21
F0	Control	24/24 (100)	24/24 (100)	22/24 (91.7)	22/24 (91.7)	22/22 (100)	Mean 2.4 S.D. 1.2	22.1	13.5	94.9	12.8	0.528	99.0	98.7	100.0
		23/23 (100)	24/24 (100)	23/23 (100)	24/24 (100)	24/24 (100)	Mean 2.8 S.D. 1.1	22.2	13.9	94.9	13.2	0.554	99.3	98.2	99.0
	DCBS 80 ppm	24/24 (100)	24/24 (100)	24/24 (100)	24/24 (100)	24/24 (100)	Mean 2.4 S.D. 1.0	22.0	14.6	94.3	13.8	0.506	99.7	96.6	99.5
	DCBS 4500 ppm	24/24 (100)	24/24 (100)	24/24 (100)	24/24 (100)	24/24 (100)	Mean 2.4 S.D. 1.1	22.1	13.2	94.8	12.5	0.525	99.0	97.6	99.5
F1	Control	24/24 (100)	24/24 (100)	23/24 (95.8)	23/24 (95.8)	23/23 (100)	Mean 2.7 S.D. 1.0	22.3	14.1	90.4	12.7	0.488	98.7	95.9	100.0
		24/24 (100)	24/24 (100)	22/24 (91.7)	22/24 (91.7)	22/22 (100)	Mean 2.6 S.D. 1.4	22.2	13.5	92.9	12.6	0.516	99.7	94.2	100.0
	DCBS 80 ppm	22/24 (91.7)	24/24 (100)	20/22 (90.9)	22/24 (91.7)	21/22 (95.5)	Mean 2.6 S.D. 1.2	22.1	13.0	88.9	12.0	0.557	(21) 98.3	(21) 93.1	(21) 97.0
	DCBS 4500 ppm	24/24 (100)	24/24 (100)	24/24 (100)	24/24 (100)	24/24 (100)	Mean 2.8 S.D. 1.7	22.1	14.3	91.3	13.0	0.522	95.9	88.4	97.7

Copulation index (%) = (number of animals with successful copulation/number of animals paired) x 100.
 Fertility index (%) = (number of animals that impregnated a female or were pregnant/number of animals with successful copulation) x 100.
 Gestation index (%) = (number of females that delivered live pups/number of pregnant females) x 100.
 Delivery index (%) = (number of pups delivered/number of implantations) x 100.
 Sex ratio = total number of male pups/total number of pups.
 Viability index on postnatal day 0 (%) = (number of live pups on postnatal day 0/number of pups delivered) x 100.
 Viability index on postnatal day 4 (%) = (number of live pups on postnatal day 4/number of live pups on postnatal day 0) x 100.
 Viability index on postnatal day 21 (%) = (number of live pups on postnatal day 21/number of live pups selected for use on postnatal day 4) x 100.
 a and b: The litter is the unit evaluated.
 Values in parentheses are the number of animals examined.

Table 13 Sperm number and motility in F0 and F1 parental male rats treated with N,N-Dicyclohexyl-2-benzothiazolesulfenamide (DCBS) in the two-generation reproductive toxicity study (SR05241)

Generation	Group	Number of animals	Number of sperm		Number of epididymal sperm		% Motile		% Pro-gressive		Swimming speed		Swimming pattern			
			testis 10 ⁶ /testis	10 ⁶ /g testis	10 ⁶ /cauda	10 ⁶ /g cauda	%	%	VAP	VSL	VCL	ALH	BCF	SIR	LIN	
F0	Control	24	Mean	184.1	111.4	268.5	856.4	88.1	70.9	159.6	112.1	365.7	20.1	27.9	69.3	30.4
			S.D.	29.3	13.2	47.6	94.4	9.3	17.4	20.8	22.5	53.4	1.1	1.5	6.6	2.8
		23	Mean	187.7	110.7	276.2	838.9	92.6	77.3	159.8	114.1	370.1	19.9	27.4	70.7	30.7
		S.D.	28.3	15.7	40.3	99.4	8.2	15.3	19.2	20.0	42.5	1.1	1.5	5.7	3.0	
DCBS 600 ppm	Control	24	Mean	184.2	110.6	269.9	850.3	93.2	77.4	162.7	116.1	372.3	20.0	27.6	71.0	31.3
			S.D.	32.7	17.1	56.8	122.1	5.9	12.1	22.0	19.3	49.8	1.3	2.2	4.3	2.5
		24	Mean	180.8	106.1	263.7	844.2	89.4	70.5	156.8	110.5	358.4	19.9	28.3	69.5	30.6
		S.D.	35.4	18.8	62.8	191.3	10.2	22.2	25.3	29.2	56.3	1.0	2.3	8.6	4.0	
F1	Control	24	Mean	194.5	115.3	273.6	849.9	92.3	81.8	175.2	126.9	399.5	21.3	26.4	72.5	32.0
			S.D.	23.0	9.5	40.0	69.4	5.0	8.1	9.8	10.2	19.8	0.9	1.6	3.3	2.1
		24	Mean	181.1	108.4	254.0	821.5	92.9	81.8	171.7	123.9	391.5	20.9	26.8	72.1	31.9
		S.D.	21.3	14.3	40.4	106.8	4.0	4.9	11.2	10.3	28.6	0.8	1.4	2.7	2.0	
DCBS 600 ppm	Control	24	Mean	186.3	111.1	256.2	827.2	93.3	83.9	172.4	126.0	395.1	20.8	26.1	73.3	32.1
			S.D.	22.5	11.3	46.0	93.3	5.6	6.4	11.4	10.5	28.6	0.8	1.6	2.9	1.8
		24	Mean	201.0	113.6	250.3	807.0	93.0	82.7	171.3	125.7	393.6	20.5 *	27.0	73.5	32.2
		S.D.	33.3	15.0	55.4	127.5	7.4	8.2	13.9	12.6	29.8	1.0	1.8	2.8	1.5	

VAP: Mean path velocity (µm/sec).
VSL: Straight line average velocity (µm/sec).
VCL: Mean curvilinear velocity (µm/sec).
ALH: Mean lateral head displacement (µm).
BCF: Mean beat cross frequency (Hz).
SIR: Mean straightness (%) = VSL/VAP x 100.
LIN: Mean linearity (%) = VSL/VCL x 100.
*: Significantly different from the control at p ≤ 0.05 by Dunnett's test.

Table 15 Sexual development in F1 parental rats treated with N,N-Dicyclohexyl-2-benzothiazol-sulfenamide (DCBS) in the two-generation reproductive toxicity study (SR05241)

Generation Group	Male			Female		
	Number of animals	Age at preputial separation (days)	Body weight (g) on the day at preputial separation	Number of animals	Age at vaginal opening (days)	Body weight (g) on the day at vaginal opening
F1 Control	24	Mean S.D.	41.3 20.3	24	Mean S.D.	104.6 9.4
DCBS 80 ppm	24	Mean S.D.	41.4 18.5	24	Mean S.D.	109.1 10.6
DCBS 600 ppm	24	Mean S.D.	41.8 17.0	24	Mean S.D.	112.1 * 13.8
DCBS 4500 ppm	24	Mean S.D.	42.8 ** 17.5	24	Mean S.D.	112.3 * 9.1

*: Significantly different from the control at $p \leq 0.05$ by Dunnett's test.

** : Significantly different from the control at $p \leq 0.01$ by Dunnett's test.

§§ : Significantly different from the control at $p \leq 0.01$ by Mann-Whitney U-test.