Table 1-8—Atomization Parameters for Disc Orifice Straight Stream Nozzle

DISC ORIFICE STRAIGHT STREAM NOZZLE FIXED-WING — D4 Orifice, 0° Angle

PSI	Airspeed, mph																				
	100			110			120			130			140			150			160		
	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100
20	561	C	2.5	470	M	3.7	391	M	5.3	324	F	7.5	270	F	10.2	228	VF	13.3	199	VF	17.0
30	613	VC	1.9	519	C	2.7	437	M	4.1	367	M	6.0	310	F	8.4	266	VF	11.3	234	VF	14.7
40	661	VC	1.5	564	VC	2.1	479	M	3.2	407	M	4.8	347	M	6.9	299	F	9.6	264	VF	12.8
50	706	VC	1.4	605	VC	1.7	517	C	2.6	442	M	3.9	379	M	5.8	329	F	8.2	291	F	11.0
60	746	VC	1.6	643	VC	1.6	552	VC	2.2	474	M	3.3	408	M	4.9	354	M	7.0	313	F	9.6

DISC ORIFICE STRAIGHT STREAM NOZZLE FIXED-WING — D4 Orifice, 10° Angle

PSI	Airspeed, mph																				
	100			110			120			130			140			150			160		
	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100
20	543	C	2.1	454	M	3.2	378	M	4.9	315	F	7.0	264	F	9.6	225	VF	12.8	199	VF	16.5
30	590	VC	1.9	499	C	2.7	420	M	4.1	353	M	6.0	299	F	8.3	258	F	11.2	229	VF	14.6
40	634	VC	1.9	540	VC	2.5	458	M	3.6	388	M	5.2	331	M	7.3	286	F	9.9	254	VF	13.1
50	674	VC	2.3	576	VC	2.6	491	C	3.4	419	M	4.7	359	M	6.6	311	F	8.9	276	F	11.8
60	710	VC	2.9	609	VC	3.0	521	C	3.5	446	M	4.6	383	M	6.1	332	F	8.2	294	F	10.8

DISC ORIFICE STRAIGHT STREAM NOZZLE D4 Orifice, 20° Angle
FIXED-WING

PSI	Airspeed, mph																				
	100			110			120			130			140			150			160		
	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100
20	531	C	1.7	445	M	2.8	372	M	4.4	312	F	6.5	263	F	9.1	228	VF	12.3	204	VF	15.9
30	574	VC	1.9	485	M	2.7	409	M	4.1	345	M	5.9	294	F	8.3	256	F	11.1	229	VF	14.5
40	613	VC	2.4	521	C	3.0	442	M	4.0	376	M	5.6	321	F	7.7	280	F	10.3	251	VF	13.4
50	648	VC	3.2	553	C	3.5	471	C	4.2	402	M	5.5	345	M	7.4	300	F	9.7	268	VF	12.5
60	679	VC	4.2	582	C	4.3	497	C	4.8	424	M	5.8	364	M	7.3	316	F	9.4	281	VF	12.0

DISC ORIFICE STRAIGHT STREAM NOZZLE D6 Orifice, 0° Angle
FIXED-WING

PSI	Airspeed, mph																				
	100			110			120			130			140			150			160		
	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100
20	567	VC	2.2	479	C	3.2	403	M	4.8	339	M	6.8	288	F	9.4	250	VF	12.4	224	VF	16.0
30	617	VC	1.5	526	C	2.2	447	M	3.5	380	M	5.3	326	F	7.6	285	F	10.4	256	VF	13.7
40	663	VC	1.0	569	VC	1.5	487	C	2.5	418	M	4.0	361	M	6.0	316	F	8.6	284	F	11.6
50	706	VC	0.9	608	VC	1.1	523	C	1.8	451	M	3.0	391	M	4.8	344	M	7.1	309	F	9.9
60	744	VC	1.0	644	VC	0.9	556	VC	1.4	481	C	2.4	418	M	3.9	367	M	5.9	330	F	8.4

DISC ORIFICE STRAIGHT STREAM NOZZLE D6 Orifice, 10° Angle
FIXED-WING

PSI	Airspeed, mph																				
	100			110			120			130			140			150			160		
	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100
20	551	VC	1.8	466	M	2.8	393	M	4.3	332	M	6.4	284	F	8.9	249	VF	12.0	226	VF	15.5
30	597	VC	1.5	508	C	2.3	432	M	3.5	369	M	5.3	318	M	7.5	279	F	10.3	253	VF	13.6
40	638	VC	1.5	547	VC	2.0	468	C	3.0	402	M	4.4	348	M	6.4	306	F	9.0	277	F	12.0
50	676	VC	1.8	582	VC	2.0	500	C	2.7	430	M	3.9	373	M	5.6	329	M	7.9	297	F	10.6
60	710	VC	2.4	613	VC	2.3	528	C	2.7	455	C	3.7	395	M	5.1	348	M	7.1	313	F	9.6

DISC ORIFICE STRAIGHT STREAM NOZZLE D6 Orifice, 20° Angle
FIXED-WING

PSI	Airspeed, mph																				
	100			110			120			130			140			150			160		
	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100
20	542	C	1.5	459	M	2.4	389	M	3.9	332	M	5.9	286	F	8.4	254	F	11.5	234	VF	15.0
30	583	VC	1.6	497	C	2.3	424	M	3.5	364	M	5.3	315	M	7.5	280	F	10.2	257	VF	13.5
40	620	VC	2.0	531	C	2.5	455	M	3.4	392	M	4.9	341	M	6.8	302	F	9.3	276	F	12.3
50	653	VC	2.7	561	VC	2.9	482	C	3.6	416	M	4.8	362	M	6.5	320	F	8.7	291	F	11.4
60	682	VC	3.7	588	VC	3.6	506	C	4.0	436	M	5.0	379	M	6.4	335	F	8.3	303	F	10.8

DISC ORIFICE STRAIGHT STREAM NOZZLE D8 Orifice, 0° Angle
FIXED-WING

PSI	Airspeed, mph																				
	100			110			120			130			140			150			160		
	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100
20	558	VC	2.2	472	C	3.1	399	M	4.6	339	M	6.5	291	F	9.0	256	VF	11.9	233	VF	15.4
30	606	VC	1.4	517	C	2.1	442	M	3.2	378	M	4.9	327	M	7.1	289	F	9.8	263	VF	13.0
40	650	VC	0.9	559	VC	1.3	480	C	2.2	413	M	3.6	360	M	5.5	318	F	7.9	289	F	10.9
50	690	VC	0.7	596	VC	0.8	514	C	1.4	445	M	2.6	388	M	4.2	344	M	6.4	312	F	9.0
60	727	VC	0.8	630	VC	0.6	545	VC	1.0	473	C	1.8	413	M	3.2	365	M	5.1	331	F	7.5

DISC ORIFICE STRAIGHT STREAM NOZZLE D8 Orifice, 10° Angle
FIXED-WING

PSI	Airspeed, mph																				
	100			110			120			130			140			150			160		
	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100
20	545	VC	1.9	462	M	2.8	392	M	4.2	335	M	6.1	290	F	8.6	257	F	11.5	237	VF	14.9
30	588	VC	1.6	503	C	2.2	430	M	3.3	369	M	5.0	321	M	7.1	286	F	9.8	263	VF	13.0
40	628	VC	1.5	539	VC	1.8	463	C	2.7	400	M	4.1	349	M	6.0	311	F	8.4	285	F	11.3
50	663	VC	1.7	572	VC	1.8	493	C	2.4	427	M	3.5	373	M	5.1	331	M	7.2	302	F	9.9
60	695	VC	2.2	601	VC	2.0	519	C	2.3	450	C	3.2	393	M	4.5	348	M	6.4	317	F	8.8

DISC ORIFICE STRAIGHT STREAM NOZZLE D8 Orifice, 20° Angle
FIXED-WING

PSI	Airspeed, mph																				
	100			110			120			130			140			150			160		
	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100
20	538	VC	1.6	458	M	2.5	391	M	3.8	336	M	5.7	294	F	8.1	265	F	11.0	248	VF	14.5
30	577	VC	1.7	494	C	2.3	424	M	3.4	366	M	5.0	321	M	7.1	289	F	9.8	269	VF	12.9
40	611	VC	2.0	526	C	2.4	453	C	3.2	393	M	4.5	344	M	6.4	309	F	8.8	286	F	11.7
50	643	VC	2.7	554	VC	2.7	478	C	3.3	415	M	4.4	364	M	6.0	325	F	8.1	299	F	10.7
60	670	VC	3.6	578	VC	3.4	499	C	3.7	433	C	4.5	379	M	5.8	338	M	7.7	309	F	10.0

DISC ORIFICE STRAIGHT STREAM NOZZLE D10 Orifice, 0° Angle
FIXED-WING

PSI	Airspeed, mph																				
	100			110			120			130			140			150			160		
	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100
20	533	VC	2.7	451	M	3.5	381	M	4.8	324	M	6.6	279	F	9.0	246	VF	11.8	226	VF	15.2
30	579	VC	1.8	494	C	2.3	421	M	3.4	361	M	4.9	313	M	7.0	278	F	9.6	255	VF	12.7
40	622	VC	1.2	533	VC	1.5	458	C	2.3	394	M	3.6	343	M	5.4	305	F	7.7	279	F	10.5
50	660	VC	0.9	569	VC	0.9	490	C	1.4	424	M	2.5	370	M	4.0	329	M	6.1	300	F	8.6
60	694	VC	0.9	600	VC	0.7	518	C	0.9	449	C	1.7	392	M	2.9	348	M	4.7	316	F	7.0

DISC ORIFICE STRAIGHT STREAM NOZZLE D10 Orifice, 10° Angle
FIXED-WING

PSI	Airspeed, mph																				
	100			110			120			130			140			150			160		
	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100
20	518	C	2.4	443	M	3.2	376	M	4.5	322	M	6.3	280	F	8.6	250	VF	11.4	233	VF	14.8
30	564	VC	2.0	482	C	2.5	412	M	3.5	355	M	5.0	310	M	7.1	277	F	9.6	257	VF	12.7
40	602	VC	1.8	516	C	2.1	444	M	2.8	383	M	4.1	335	M	5.9	300	F	8.2	277	F	11.0
50	635	VC	2.0	547	VC	1.9	471	C	2.4	408	M	3.4	357	M	4.9	319	M	7.0	293	F	9.5
60	665	VC	2.4	574	VC	2.1	495	C	2.3	429	M	3.1	375	M	4.3	334	M	6.1	305	F	8.3

DISC ORIFICE STRAIGHT STREAM NOZZLE D10 Orifice, 20° Angle
FIXED-WING

PSI	Airspeed, mph																				
	100			110			120			130			140			150			160		
	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100
20	518	C	2.1	442	M	2.9	378	M	4.1	326	M	5.9	287	F	8.2	261	F	11.0	246	VF	14.3
30	555	VC	2.1	476	C	2.6	409	M	3.6	354	M	5.1	312	M	7.1	283	F	9.7	265	VF	12.7
40	588	VC	2.4	506	C	2.6	436	M	3.4	378	M	4.6	333	M	6.4	301	F	8.6	281	F	11.4
50	617	VC	3.0	532	VC	2.9	459	C	3.4	398	M	4.4	350	M	5.9	315	F	7.9	292	F	10.4
60	642	VC	3.9	554	VC	3.6	478	C	3.7	415	M	4.4	364	M	5.7	325	F	7.4	299	F	9.6

DISC ORIFICE STRAIGHT STREAM NOZZLE D12 Orifice, 0° Angle
FIXED-WING

PSI	Airspeed, mph																				
	100			110			120			130			140			150			160		
	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100
20	494	C	3.5	414	M	4.2	348	M	5.4	293	F	7.1	251	F	9.3	222	VF	12.1	205	VF	15.3
30	538	VC	2.5	455	C	3.0	386	M	3.9	328	M	5.4	284	F	7.3	251	F	9.8	231	VF	12.8
40	578	VC	1.9	493	C	2.1	420	M	2.7	360	M	3.9	312	M	5.6	277	F	7.8	254	VF	10.5
50	614	VC	1.6	526	C	1.4	450	C	1.8	387	M	2.8	336	M	4.2	298	M	6.1	272	F	8.6
60	647	VC	1.5	556	VC	1.1	477	C	1.3	411	M	1.9	357	M	3.1	316	M	4.7	287	F	6.9

DISC ORIFICE STRAIGHT STREAM NOZZLE D12 Orifice, 10° Angle
FIXED-WING

PSI	Airspeed, mph																				
	100			110			120			130			140			150			160		
	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100
20	486	C	3.2	409	M	3.9	345	M	5.1	294	F	6.8	255	F	9.0	229	VF	11.7	214	VF	15.0
30	525	C	2.8	446	M	3.2	379	M	4.1	325	M	5.5	283	F	7.4	253	F	9.9	236	VF	12.8
40	561	VC	2.5	478	C	2.7	409	M	3.3	351	M	4.5	306	M	6.2	274	F	8.3	254	VF	11.0
50	592	VC	2.6	507	C	2.5	434	M	2.9	374	M	3.8	326	M	5.2	291	F	7.1	268	F	9.5
60	620	VC	3.0	532	VC	2.6	456	C	2.7	393	M	3.3	342	M	4.5	304	M	6.1	278	F	8.3

DISC ORIFICE STRAIGHT STREAM NOZZLE D12 Orifice, 20° Angle
FIXED-WING

PSI	Airspeed, mph																				
	100			110			120			130			140			150			160		
	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100	$D_{V0.5}$	DSC	%<100
20	484	C	3.0	410	M	3.7	349	M	4.8	301	F	6.5	265	F	8.7	241	VF	11.4	230	VF	14.6
30	518	C	3.0	442	M	3.3	378	M	4.2	327	M	5.6	288	F	7.5	261	F	10.0	247	VF	12.9
40	549	VC	3.2	470	C	3.3	403	M	3.9	349	M	5.0	307	M	6.7	277	F	8.8	260	VF	11.5
50	576	VC	3.7	494	C	3.5	424	M	3.9	367	M	4.8	322	M	6.1	290	F	8.0	270	F	10.4
60	600	VC	4.5	514	C	4.1	442	C	4.2	381	M	4.8	333	M	5.9	298	F	7.5	275	F	9.6