

Minnesota Battery Stewardship

Bi-Annual Report

REPORTING PERIOD: 2017 & 2018

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Battery Recycling Collections

During the two-year period of 2017 and 2018, Call2Recycle collected a total of 310,200 lbs. of rechargeable batteries. Below please find the specific recycling collection data by battery chemistry and industry sector (Figure 1).

FIGURE 1

Material Type	Material Name	2017	2018	% Chg
Rechargeable	Lead	39,225	44,634	14%
Rechargeable	Li-Ion	31,843	30,530	-4%
Rechargeable	Ni-Cd	80,001	61,484	-23%
Rechargeable	Ni-MH	14,213	8,270	-42%
Primary	Alkaline/Carbon Zinc	55,323	44,583	-19%
Primary	Lithium	2,955	3,763	27%
Cellphone	Cellphone	622	1,128	81%
Cell Phone	Cell Phone Accessories	3	0	-100%
Other	Other	3,076	2,385	-22%
Total		226,637	195,651	-14%
Total Rechargeable Battery		165,282	144,918	-12%

Industry	2017	2018	% Chg
Retail/Wholesale	37,505	42,433	13%
Public Agency / Municipality	107,641	89,028	-17%
Business	3,805	2,921	-23%
Manufacturing	16,331	10,536	-35%

Below please find the *estimated* pounds of rechargeable batteries sold into the state of Minnesota during the previous two years. Please note this data is a rough estimate which is based on a compilation of total market research and state population (Figure 2).

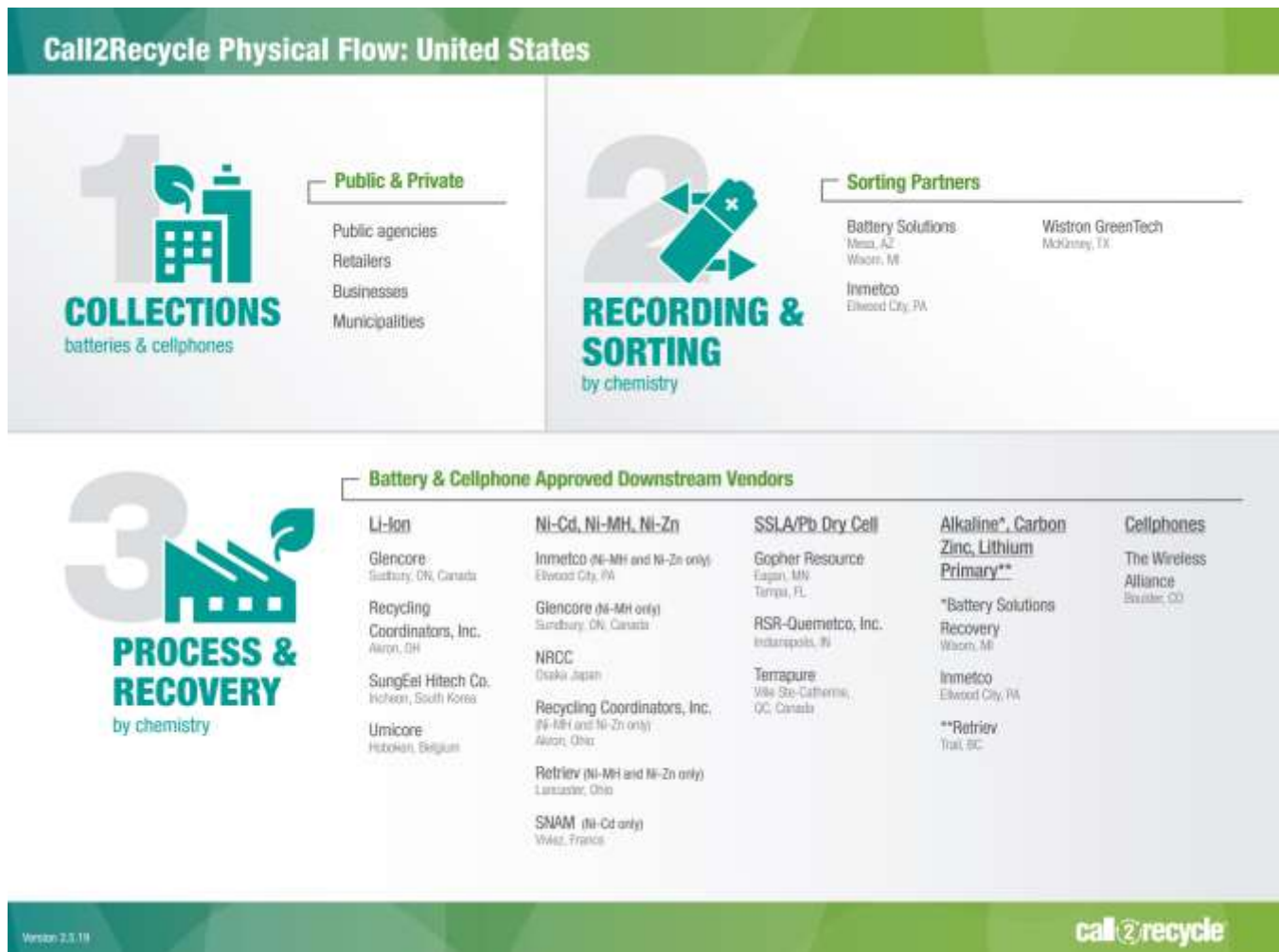
FIGURE 2

Estimated Rechargeable Batteries Sold into the State		
Industry	2017	2018
Est. Pounds of ALL Rechargeable Batteries Sold into the State	3,250,000	3,350,000

Proper Battery Management

Batteries collected from Minnesota residents are transported to sorting facilities where they are separated by battery chemistry and then sent to appropriate specialty processors. These processors extract material to be used in the manufacturing of new products. Below please find the “physical flow” (Figure 3) of where batteries go after they are dropped off at a Call2Recycle participating collection site.

FIGURE 3

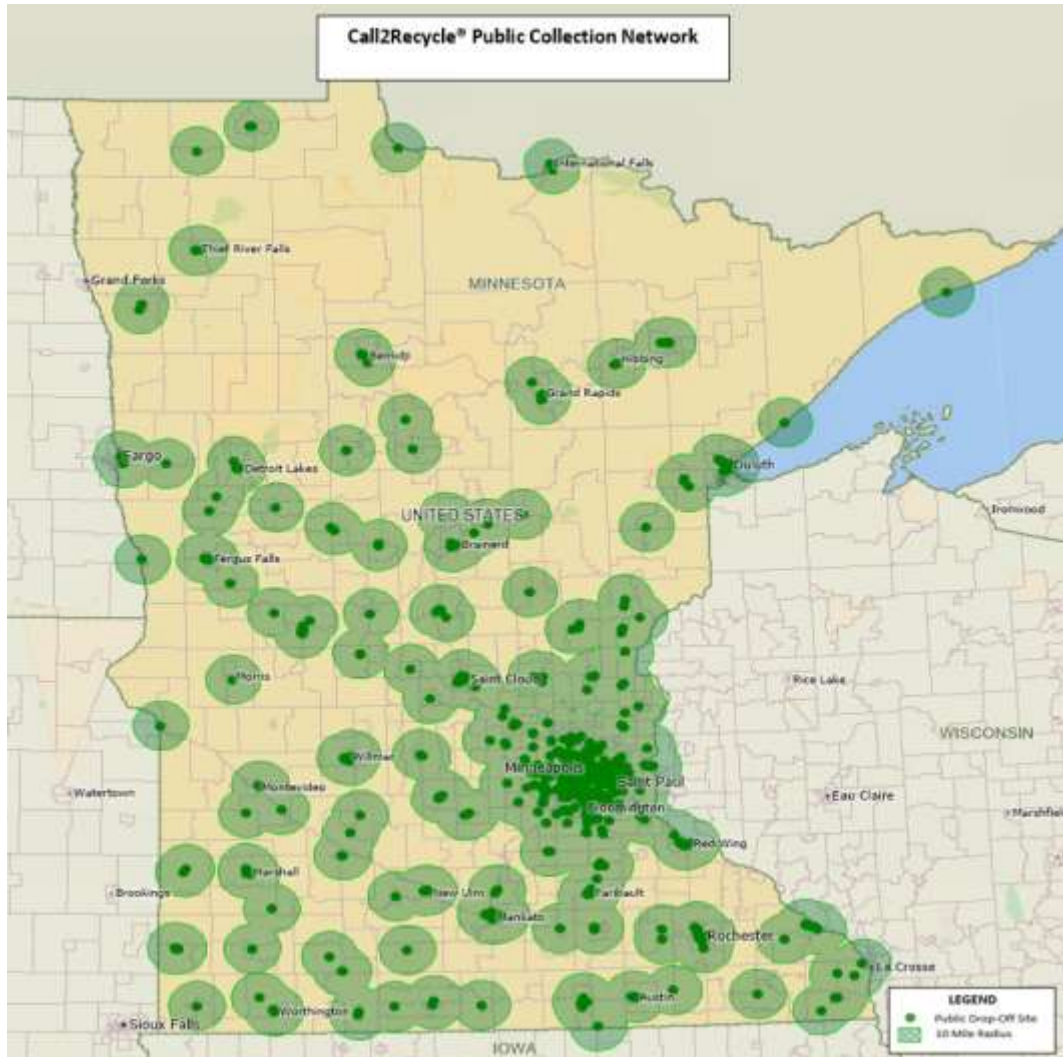


Waste products are responsibly and safely disposed of according to Responsible Recycling 2013 (R2) standards. Cellphones are either refurbished and resold or recycled, with the proceeds used to fund the cellphone collection program and educational outreach.

Public Recycling Site Accessibility

To optimize the percentage of the U.S. population that has access to battery and cellphone recycling through the Call2Recycle collection site network, Call2Recycle has developed a standard for measuring public recycling accessibility, specifically for batteries and cellphones. This accessibility rate measures the percent of a state's population that lives within a 10-mile radius of an available Call2Recycle drop off location. By year's end 2018, Call2Recycle achieved an 85% accessibility rate in Minnesota. Please see the adjacent map (Figure 4) for specific details.

FIGURE 4



Collection Network		
Site Type	2017 # of Sites	2018 # of Sites
# of Active Public Sites	289	264
# of Active Private Sites	358	311
Public Accessibility Rate	89%	85%

Website Statistics

Call2Recycle’s outreach efforts focus on driving consumers to our interactive web site, (Figure 5) which provides educational resources and a locator to identify convenient battery recycling drop-off sites.

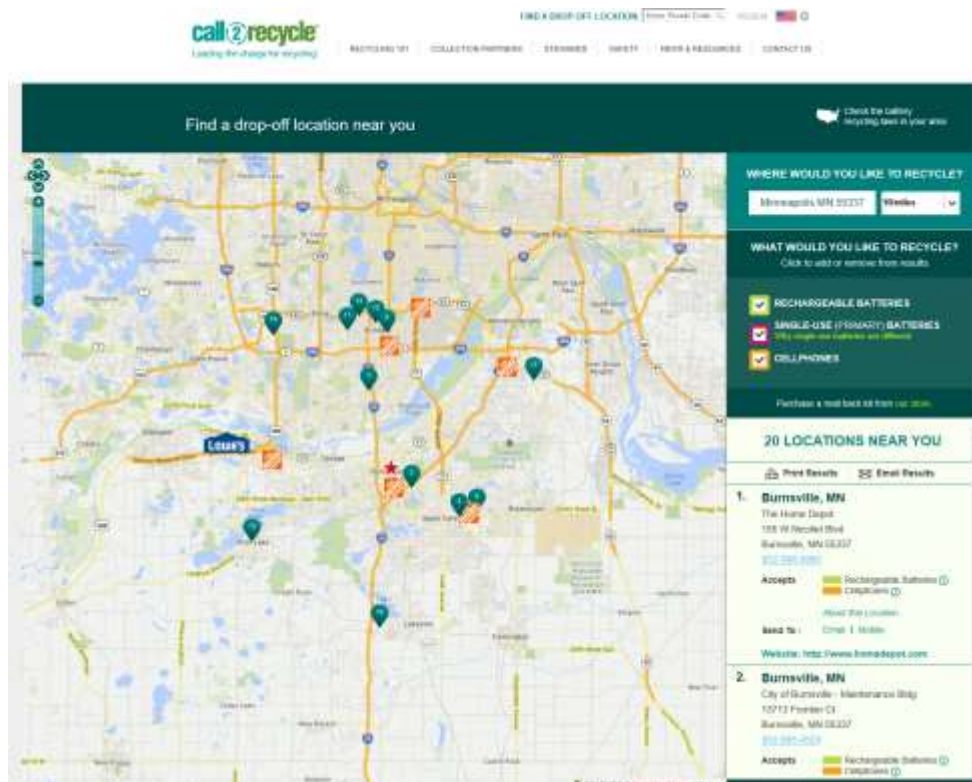
One of the most viewed sections of the website is the public drop-off site locator tool (Figure 6). This tool allows Minnesota residents to enter their City/Town or zip code to find the nearest Call2Recycle participating site to recycle their used rechargeable batteries.

FIGURE 5



The locator tool was used 16,342 (2017) and 26,673 (2018) times by Minnesota residents to find a Call2Recycle drop-off location.

FIGURE 6



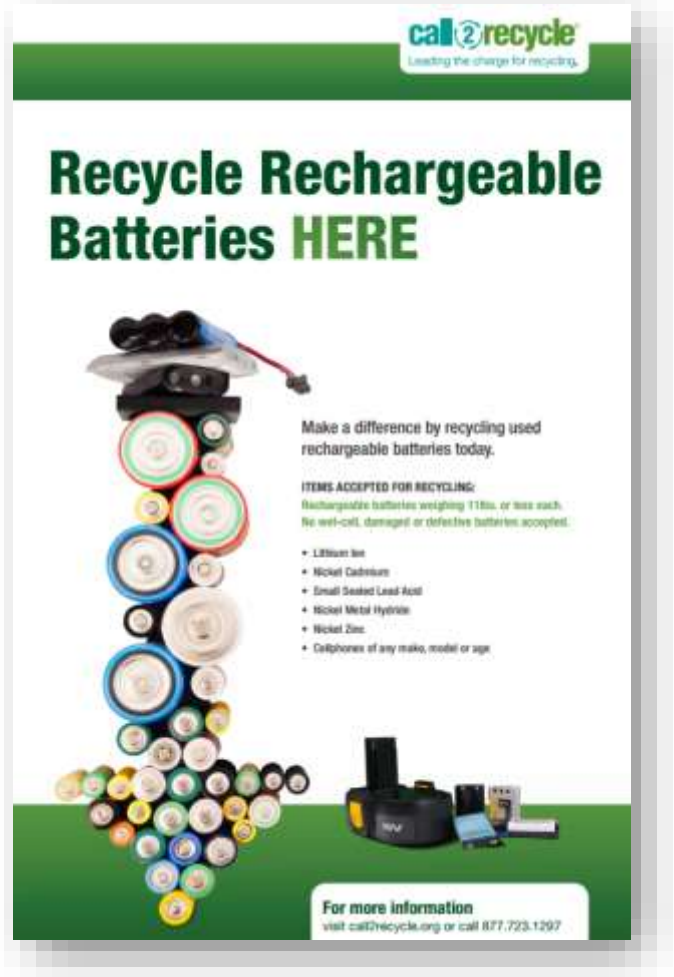
www.call2recycle.org

Outreach & Customer Service Activity

Call2Recycle's Customer Service Team fields hundreds of daily inquiries from collection sites and consumers across the country. Some of these inquiries are from the 500+ private and public battery collection sites in Minnesota. Call2Recycle's Customer Service Team fielded the following inquiries from Minnesota:

- Customer Requests Originating from MN Collection Sites/Consumers – 476 in 2017 and 594 in 2018.
- New Collection Site Enrollments – 27 in 2017 and 22 in 2018.
- Boxes Sent Out / Boxes Received – 3,795/3,128 in 2017 and 3,917 / 3,350 in 2018.

FIGURE 7 – SAMPLE COLLECTION SITE POSTER



Charge Up Safety™ Campaign

The safe handling, transport and disposal of used batteries, specifically lithium-based batteries, is a core tenet of the Call2Recycle program. To help ensure collection sites receive proper training on how to safely package used batteries for transportation, Call2Recycle launched a new campaign called *Charge Up Safety™*. As part of this campaign, Call2Recycle developed and launched a safety portal to provide best practices and resources for collection sites. Below are several key components of the campaign.

Online Training Course

As part of this campaign, Call2Recycle launched an online training course (Figure 8) for participating collection sites to help ensure the safe packaging of used batteries for transportation. As a result, in 2017 & 2018, 295 site contacts at 222 participating collection sites in Minnesota were trained, and we will seek to train the remainder in 2019.

FIGURE 8



FIGURE 9



Flame Retardant Box Liner Introduced

To advance its commitment to safety, Call2Recycle, Inc. introduced a patent-pending flame-retardant box liner (Figure 9). This innovation offers an additional layer of protection in the prevention of a thermal event during the battery journey – from collection to transportation to sorting and processing. When used in conjunction with Call2Recycle’s program and regulatory terminal protection guidelines, the liner helps prevent flames escaping from the battery box in the event of a thermal runaway. In December 2017, Minnesota sites receiving replenishment shipments of boxes began receiving collection boxes with the flame-retardant liner.

Revamped Packing Guidelines

Call2Recycle updated its quick reference guide for packing boxes and bulk shipments. (Figure 10).

FIGURE 10



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Active Industry Stewards

3M Automotive Aftermarket Division
3M Commercial Solutions Division
3M Construction & Home Improvement
3M Personal Safety Division
A2Z Development Center, Inc.
Accell North America
Acer America Corporation
Advanced Respiratory, Inc.
Aero Design, Inc.
Aerosense Inc.
Agilent Technologies
Alcatel and Alcatel Onetouch
Allied Intl/Allied Tools
Alltrade Tools, LLC
Amazon.com, Inc.
American Honda Motor Co., Inc.
American Lawn Mower Co.
American Toppower
APC - Schneider Electric
Apple, Inc.
Arlo Technologies, Inc.
Arris Group, Inc.
Asus Computer International
Audio Enhancement, Inc.
Axiom Mobile Group
Baccus Global
Barnesandnoble.com, LLC
Battery Specialties
Bayco Products
Bayer Healthcare
Belkin International, Inc.
Best Buy Co., Inc.
BionX International
Bissell Homecare, Inc.
Bose Corporation
Brother International
Bushnell, Inc.
BYD Company Limited
Canadian Tire Corporation, Limited
Canon Canada Inc.
Canon USA Inc.
Car Mate USA Inc.
Casio America, Inc.
Catapult1, LLC
Century Optronic Inc.
Changzhou Globe Tools Co. Ltd.
Chervon HK Limited
Chervon HK Limited/The Home Depot
Chervon HK Lmtd/The Home Depot Canada
Cisco Systems Inc.
Cleva North America/LawnMaster
Cognex Inc.
Computer Technology Link Corp (DBA CTL)
Conair Corporation
CTE Energy Co., Limited
Cybertron International
Deere & Company (John Deere)
Dell Canada Inc.
Dell Inc.
Deltran USA LLC
Digi-Key Corporation
DLG (Shanghai) Electronic
Dongguan Sunly Battery Tech Co., Limited
Dorcy International
Durabooks Americas, Inc.
Duracell Canada Inc.
Duracell US Operations
Eaton Corporation
Echo Incorporated
Enerco Group Inc.
Energizer Holdings, Inc.
Energizer Holdings, LLC.
EnerSys Delaware Inc.
Epson America, Inc.
Esselte Corporation
Evergreen (C.P.) USA Inc.
EZsmart Gutter Cleaner, LLC
FDK AMERICA
Fedco Electronics, Inc.
Ferno - Washington, Inc.
Finish Thompson, Inc.
Flying Dragon Development Limited
FujiFilm Holdings America Corp.
Fujitsu America
Garmin International, Inc.
GE Healthcare Canada, Inc.
Getac Inc.
Gibson Innovations USA, Inc.

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GiiNii Tech Corporation
Global Technology Systems, Inc.
Gold Peak Industries (NA), Inc.
Google, Inc.
GRACO, Inc.
Gradus Group
GreenSmoke, Inc.
GS Battery (USA) Inc.
Guangzhou Great Power Energy Tech Co LTD
Harris Corporation
Hewlett Packard Enterprise
Hilti Canada Corporation
Hilti, Inc.
Hitachi Koki Canada Co.
Hobbico, Inc.
HoMedics
Honeywell International Inc.
HP Inc.
HTC Corporation
Huawei Device USA. Inc.
Husqvarna AB
IDX System Technology Inc.
IMA Test Steward
Industrial Battery Service Inc.
Ingersoll Rand
Inspired Energy, LLC
Intec Industries Co. Limited
Intermetro Industries Corp.
Invacare Corporation
Invox Hardware Limited
iRobot Corp.
Jasco Products Company
JC Technology dba Ace Computers
Jiawei Technologies (USA) Limited
JIN CO Limited
JKH Health Co., Limited
JLG Industries Inc.
JVCKENWOOD USA Corp.
KAN Battery Co., Limited
Karcher North America
Keyence Corporation of America
Keysight Technologies
Koki Holdings America Limited
Konica Minolta
Kwonnie Electrical Products, Limited
LEDVANCE, LLC
LEGO Brand Retail, Inc.
Leica Camera Inc.
Lenmar Enterprises, Inc.
Lenovo (United States) Inc.
LEXEL BATTERY CO Limited
LG Electronics Canada, Inc.
LG Electronics USA, Inc.
L'Image Home Products Inc. (IHP)
Logic Technology Development
LOGITECH Inc.
Mag Instrument, Inc.
Maha Energy
Makita Canada, Inc.
Makita USA
Mattel, Inc.
Metabo Corporation
Microsoft Corporation
Midland Radio Corporation
Miller Mfg Co.
Moshi
Motorola Mobility, LLC
Motorola Solutions, Inc.
MTD Products Inc.
MTRLC LLC
myCharge
National Battery
National Power Corp.
NEC Corporation of America
Neptune Technology Group Inc.
Nest Labs, Inc.
Netgear, Inc.
Nikon Canada Inc.
Nikon Inc.
Nippon Primex Inc.
Normark Innovations Inc.
Novatel Wireless Inc.
NU MARK LLC
Nylube Products Company LLC
O2COOL, LLC
Olympus Corp of the Americas
OMRON Corporation
OOMA Inc.
Oracle America, Inc.
Panasonic Corporation

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Pantech Co Limited
Pelican Products, Inc.
Philips Consumer Electron
Pioneer Home Entertainment
Pitney Bowes, Inc.
Plantronics, Inc.
Polycom, Inc.
Positec Tool Corporation
POWER PRODUCTS
Privoro, LLC
ProTeam, Inc.
PSA PARTS, Inc.
Quality One Wireless
Razor USA LLC
Richpower Industries, Inc.
Ricoh Imaging Americas Corporation
Ridge Tool Company (RIDGID)
Riese & Muller
RKI Instrument, Inc.
Robert Bosch Tool Corporation
Royal Consumer Information Products, Inc.
RRC POWER SOLUTIONS
Samsung Electronics America Inc.
Sandvik Machining Solutions USA LLC
Scosche Industries
SDI Technologies Inc.
Senco Products, Inc.
Sensidyne LP
SharkNinja
Sharp Electronics Corporation
Shenzhen Grepow Battery Co., Limited
SHIMANO
Sigma Corporation
Sinopower Technology (HK) Limited
Snap-on Inc
Sony Electronics, Inc
Southern Telecom, Inc.
SOUTHWICK TECHNOLOGIES Inc.
Southwire Company
Spectrum Brands
SRAM, LLC
Stanley Black & Decker, Inc.
Stihl Incorporated
Stihl Limited
StorTronics
Streamlight, Inc.
Summer Infant, Inc.
Surefire, LLC
Tacony Corporation
TCL Mobile
TCT MOBILE INC-ALCATEL BlackBerry
Technical Power Systems Inc.
Techtronic Industries GmbH
Techtronic Trading Limited
Test Rite Products Corp.
Texas Instruments Inc.
The Coleman Company
The Gillette Co/Braun Division
The Gillette Co/Oral-B Division
The Source
The Toro Company
Tokyo Seimitsu Co., Limited
TomTom Inc.
Toshiba America Client Solutions Inc.
Toshiba Client Solutions Canada Limited
Trans Cosmos America/GVIDO
Transcosmos America Inc.
Traxxas L.P.
Trek Bicycle Corporation
TTEK ASSEMBLIES Inc.
TTI (Macao Comm OfSh) Limited
ULTRALIFE CORPORATION
Uniden America Corporation
VARTA Microbattery Inc.
Venom Power
Vera Bradley
Vernier Software and Technology
Vibratex, Inc.
Vizio Inc.
VTech Telecommunications Limited
WACOM TECHNOLOGY Corp.
WATER PIK, INC.
Whill, Inc.
WOHLER USA
Xplore Technologies Corp.
YAC USA, Inc.
Yamaha Motor Corp. USA
Zebra Technolgies Corp.
Zippo Manufacturing Company

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